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CONTRIBUTIONS FROM THE GRAY HERBARIUM OF HARVARD UNIVERSITY.

NEW SERIES. — NO. XXV.

NEW AND OTHERWISE NOTEWORTHY ANGIOSPERMS FROM MEXICO AND CENTRAL AMERICA.

BY J. M. GREENMAN.

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Presented May 13, 1903, by B. L. Robinson.

THE descriptions and notes in the present paper are the result of the study of several series of Mexican and Central American plants, chiefly from the recent collections of Cyrus Guernsey Pringle, Dr. Edward Palmer, Dr. Joseph Nelson Rose, Edward William Nelson, Señors Cassiano Conzatti and Valentin González, C. H. T. Townsend and C. M. Barber, E. W. D. Holway, Captain John Donnell Smith, Henri Pittier, and Adolfo Tonduz.

The herbarium in which the types and other mentioned specimens occur is indicated immediately after the citation of the numbered specimen; and the abbreviations for the different herbaria are as follows: hb. Gr. (Gray Herbarium), hb. U. S. Nat. Mus. (Herbarium of the United States National Museum), hb. J. D. S. (Herbarium of John Donnell Smith), hb. Inst. Phys.-Geog. Cost. Ri. (Herbarium of the National Physico-Geographical Institute of Costa Rica). For the most part the species represent the *Metachlamydeæ*, especially the *Compositæ;* although a few *Archichlamydeæ*, as well as *Monocotyledoneæ*, are herein described.

Rhynchospora Pringlei. Pale green: culms triangular, 1 m. or more high: stem-leaves remote; sheath slightly inflated, 5 to 7 cm. long; blade 2 to 4.5 dm. long, 8 to 10 mm. broad, hispidulous on the margins and along the midrib beneath: inflorescence cymose-paniculate; the terminal cymule subsessile or short pedunculate, the lateral on long slender peduncles 4 to 10 cm. in length; bracts lance-attenuate; scales of the spikelet broadly ovate, 1-nerved, terminated by a short awn, brown or somewhat

chestnut-colored: achene flattened, oblong-obovate, 3 to 4 mm. long, bearing on either surface in the upper half near the margin a longitudinal ridge, minutely pitted, dark brown in color; tubercle or beak conical, about as long as the achene: setæ unequal, 6 in number and mostly shorter than the achene. — MEXICO. State of Michoacan: in swamps near Zamora, altitude 1500 m., 24 May, 1901, and 25 July, 1902, *C. G. Pringle*, nos. 9668, 8642 (hb. Gr.).

The affinity of *Rhynchospora Pringlei* is with *R. aurea*, Vahl., and *R. aristata*, Boeck., but it differs from both these species in the contracted inflorescence, and in the achenial characters.

Tradescantia dracænoides. *T. longifolia*, Greenm., Proc. Am. Acad. xxxiii. 471 (1898), not Small, Bull. Torr. Bot. Cl. xxiv. 233 (1897). *Dichorisandra longifolia*, Mart. & Gal. Bull. Acad. Brux. ix. 378 (reprint p. 7). *T. holosericea*, var. *dracænoides*, Clarke in DC. Monogr. Phanerog. 302; Hemsley, Biol. Cent.-Am. Bot. iii. 393.

Tradescantia saxicola. Stems decumbent or ascending, simple or branched, 1 to 2 dm. high, commonly rooting at the nodes, glabrous except along a line continuous with the short ciliated sheath opposite the leaf-blade, purplish: leaves narrowly lanceolate, 1.5 to 4 cm. long, 4 to 8 mm. broad, acute, slightly hirtellous-margined, sparingly pubescent above, glabrous beneath: inflorescence terminating the stem and branches in sessile subumbellate floral-clusters; pedicels reflexed and, as well as the calyx, hirsute-pubescent: sepals oblong-ovate, 4 to 4.5 mm. long, obtuse: petals white, somewhat exceeding the calyx: stamens unequal; the outer cycle shorter, and with glabrous filaments; the inner fully equalling the petals, with bearded filaments, and with anther-cells separated by rather broad connectives: capsule small, smooth and glabrous, 2 to 3 mm. in length. — MEXICO. State of Guerrero: on ledges, Iguala Cañon, near Iguala, 14 September, 1900, *C. G. Pringle*, no. 9270 (hb. Gr.).

This species belongs to the section *Descantaria*, and in general habit resembles *T. angustifolia*, Robinson, *T. disgrega*, Kunth, and *T. multiflora*, Swartz.

Tradescantia Urbinana. Roots tuberiform, fleshy: stems branching from the base; branches erect, 2 to 5 dm. high, glabrous: leaves lanceolate or lance-attenuate, 5 to 10 cm. long, 0.5 to 1.5 cm. broad, acute, smooth-margined, glabrous on both surfaces; sheath slightly inflated, 0.5 to 1 cm. long: inflorescence terminating the branches in compound pedunculate umbels; bracts small, 3 mm. or less in length; peduncles and pedicels glabrous and, as well as the calyx, purplish:

flowers small, 1 cm. or less in diameter: sepals oblong, somewhat navicular, 4 to 6 mm. long, glabrous: petals ovate or subrotund, 5 to 6 mm. long and broad, deep purple: stamens 6, equal; filaments bearded; anthers uniform: capsule oblong, obtusely triangular, 5 mm. long, hirtellous-puberulent above. — MEXICO. State of Morelos: Sierra de Tepoxtlan, near Cuernavaca, altitude 2300 m., 11 September, 1900, *C. G. Pringle*, no. 9250 (hb. Gr.).

This species belongs to the section *Eutradescantia*, and is seemingly most nearly related to *T. Karwinskyana*, Roem. & Schult., and *T. linearis*, Torr. The writer takes pleasure in dedicating the species to Señor Dr. Manuel Urbina, Director of the National Museum, City of Mexico.

Zygadenus mohinorensis. Bulbs scaly-fibrous coated, about 2 cm. in diameter: scape 10 dm. high, commonly bearing 2 remote leaves: basal leaves, 5 to 6 dm. long, 10 to 14 mm. broad, attenuate to an obtuse tip, dark green and glabrous on both surfaces: inflorescence 3 to 4 dm. in length, branched below; branches erect, subappressed against the main axis; bracts of the inflorescence conspicuous, green or purplish, exceeding the 0.5 to 2 cm. long pedicels: flowers white or greenish-white, about 2 cm. in diameter; perianth-divisions oblong, 10 mm. long, 5 to 7 mm. broad, bearing at their base an obcordate or somewhat Y-shaped erose-margined gland: stamens included, equalling the style-branches, about one-half as long as the perianth-segments: mature fruit not seen. — MEXICO. State of Chihuahua: Mt. Mohinora, 1 September, 1898, *E. W. Nelson*, no. 4875 (hb. Gr., and hb. U. S. Nat. Mus.).

This species is most nearly related to *Z. elegans*, Pursh, but differs in the somewhat larger flowers, the more conspicuous and longer bracts of the inflorescence, and in the nature of the glands at the base of the perianth-segments.

VERATRUM CALIFORNICUM, Durand, Journ. Acad. Nat. Sc. Phil. Ser. II. iii. 103; Watson, Bot. Calif. ii. 182. The geographical range of this species is extended considerably southward by the collection of excellent specimens in the Sierra Madres near Colonia Garcia, State of Chihuahua, MEXICO, altitude 2450 m., 7 August, 1899, *Townsend & Barber*, no. 235 (hb. Gr.).

Anthericum drepanoides. Roots fleshy-fibrous, sometimes tuberous, fascicled, crowned by a collar of brownish fibres 2 to 3 cm. in length, the remains of the bases of the older leaves: assimilating leaves rosulate, about 9, lance-attenuate, 0.5 to 1.5 dm. long, 8 to 18 mm. broad, acute, conspicuously ciliate on the subcartilaginous margins, more or less con-

duplicate, at least in the dried state, glabrous on both surfaces, rather prominently and numerously nerved: scape 5 to 6 dm. high, few-branched above, terete, glabrous, bearing about 4 bracts: pedicels 1 cm. or less in length, jointed below the middle: flowers yellow: perianth about 12 mm. long; divisions narrowly oblong, 3-nerved; mature fruit not seen. — MEXICO. State of Oaxaca: Sierra de San Felipe, altitude 1830 m., 6 August, 1894, *C. G. Pringle*, no. 5757 (hb. Gr.).

Mr. Pringle's plant above cited was in the Gray Herbarium referred by the writer to *Anthericum Humboldtii*, Hemsley (*Phalangium ciliatum*, HBK., Nov. Gen. & Sp. i. 276, & vii. t. 676), but that species is a native of South America, first collected near Caracas, Venezuela, and has straight leaves 10 to 13 cm. long, 6 to 7 mm. broad, and is said to have white flowers.

Anthericum durangense. Roots tuberous, fascicled: leaves basal, lanceolate, 1.5 to 2.5 dm. long, 1.5 to 2 cm. broad, acuminate, acute, ciliate, dark green and glabrous on both surfaces: scape 4 to 5 dm. high, simple or branched, glabrous, or slightly hirtellous, usually unibracteate: floral bracts ovate, mostly acuminate, hyaline, nerved, greenish-white: pedicels jointed: perianth yellow, or yellowish-white in the dried state; divisions at the period of anthesis about 1.5 cm. long, 3-nerved. — MEXICO. State of Durango: near El Salta, altitude 2440 to 2650 m., 12 July, 1898, *E. W. Nelson*, no. 4544 (hb. U. S. Nat. Mus., and hb. Gr.).

Var. **trachycaulum.** Leaves in outline and size like the type, yellowish-green, ciliolate-scabrellous on the margins: scape hirtellous even to the flowers: perianth somewhat smaller than in the species proper, about 1 cm. in length: capsule 1 cm. long, glabrous. — MEXICO. State of Durango: Ramos to Inde, 11–14 August, 1898, *E. W. Nelson*, no. 4706 (hb. U. S. Nat. Mus., and hb. Gr.).

Anthericum Nelsonii. Roots tuberous, fascicled: leaves basal, narrowly lanceolate, 4 to 9 cm. long, 3 to 7 mm. broad, glabrous on both surfaces, minutely scabrellous on the subcartilaginous margins: scape 1 to 2 dm. high, glabrous, naked or bearing a single greenish-white nerved bract near or somewhat above the middle, terminated by 1 to 3 flowers: floral bracts scarious, greenish-white, nerved: pedicels 0.5 to 1 cm. in length, jointed in the middle: perianth yellow or in the dried state yellowish-white; divisions 8 to 10 mm. long, 3-nerved, obtusish or somewhat rounded at the apex: stamens nearly or quite as long as the perianth; anthers free: capsule about 1 cm. long. — MEXICO. State of Chihuahua: base of Mt. Mohinora, 12.8 km. from Guadalupe y Calvo,

altitude 2130 to 2285 m., 23–31 August, 1898, *E. W. Nelson*, no. 4844 (hb. U. S. Nat. Mus., and hb. Gr.).

Anthericum Nelsonii is apparently most nearly related to *A. nanum*, Baker, from which it differs in the glabrous character of the scape and by the twice longer capsule.

Echeandia flexuosa. Roots fascicled, tuberous, crowned by a collar 6 cm. in length, the persistent fibres of the bases of the older leaves: scape 7 to 9 dm. high, flexuous, glabrous, leafy at the base, bearing one or two reduced leaves on the main axis, few-branched above into arcuate-ascending more or less flexuous and somewhat compressed or subangulate branches: leaves linear-attenuate, 1.5 to 8 dm. long, 2 to 5 mm. broad, ciliolate to slightly roughened along the margins, thickish and firm in texture, closely parallel-nerved, without transverse anastomosing veinlets, glabrous above, scabrellous on the nerves of the outer or under surface: flowers 3 to 5 in the axils of short chartaceous bracts; pedicels jointed near or below the middle, 16 mm. or less long in fruiting specimens; perianth white or greenish-white, 10 to 12 mm. long; segments 3-nerved, the inner slightly broader than the outer: stamens about equalling the perianth; anthers coherent around the style; filaments plicated: capsule oblong, obtusely triangular, 7 to 10 mm. in length, valves somewhat rugose or transversely ridged: seeds black, about 1.5 mm. long and broad in the dried state. — MEXICO. State of Jalisco: Rio Blanco, July, 1886, *Dr. Edward Palmer*, no. 185 (hb. Gr.). State of Oaxaca: Mountains of Jayacatlan, altitude 1540 m., 10 September, 1894, *L. C. Smith*, no. 188 (hb. Gr.).

Very similar to this species is a specimen collected by Mr. C. G. Pringle on calcareous hills, Las Sedas, State of Oaxaca, altitude 1830 m., no. 5755 (hb. Gr.), but the anthers in Mr. Pringle's specimens are quite distinct, hence according to the present interpretation of the genera *Echeandia* and *Anthericum* it must be referred to the latter genus.

Echeandia macrocarpa. Scape 6 to 7 dm. high, leafy at the base, 2–3-bracteate above, glabrous: leaves lorate, 2 to 3 dm. long, 1.2 to 2 cm. broad, acute, entire or inconspicuously roughened along the margins, dark green and glabrous on both surfaces: inflorescence a glabrous panicle, about 3 dm. in length: pedicels jointed about one-third their length from the base, 2 cm. or less long: flowers 3 to 5 in the axils of chartaceous bracts: perianth white (?), 8 to 12 mm. long; segments 3-nerved; the outer 2 mm., the inner 3 mm. broad: stamens about equalling the perianth; anthers united or coherent into a tube around the style:

capsule 16 to 18 mm. long, prominently nerved. — MEXICO. State of San Luis Potosi: near Tancanhuitz, 2 May, 1898, *E. W. Nelson*, no. 4393 (hb. U. S. Nat. Mus., and hb. Gr.).

Hymenocallis graminifolia. Roots fleshy-fibrous: bulbs ovate-rotund, about 3 cm. high and nearly or quite as broad, covered with dark-brown scales: leaves lorate, 1.5 to 2 dm. long, 5 to 7 mm. broad, obtuse, entire, thin or submembranous: peduncle 1 to 1.5 dm. long, strongly 2-edged, especially above: flowers few (1 to 4), sessile: spathe-valves lance-attenuate, scarious: perianth-tube about 4 cm. long, greenish; segments lorate, narrowly lanceolate, slightly exceeding the tube: staminal-cup broadly funnel-shaped, about 3 cm. high; free portion of filament nearly or quite 2 cm. long: anthers versatile, 14 mm. long: style slender, greenish; stigma overtopping the anthers: cells of the ovary each containing 2 ovules. — MEXICO. State of Morelos: valley near Yantepec, altitude 1230 m., 6 July, 1901, *C. G. Pringle*, no. 8532 (hb. Gr.).

In habit this species approaches *H. humilis*, Watson, and *H. galvestonensis*, Baker, but differs materially in the size of the staminal-tube.

Hymenocallis Pringlei. Bulbs ovate-rotund, about 4 cm. long, equally broad, covered with dark-brown scales, which are continuous over the cylindrical 4 cm. long, and 1.8 cm. thick neck: leaves lanceolate, 1.2 dm. long, 1 to 2.5 cm. broad, narrowed at both ends, obtusish, entire, glabrous on both surfaces: peduncle 2 to 2.5 dm. long: spathe-valves lanceolate, attenuate, 4 to 5 cm. long, 12 mm. broad at the base, thin and scarious: flowers 4 to 6: perianth-tube 3.5 cm. long; segments somewhat exceeding the tube, narrow, 3 to 4 mm. broad: staminal-cup rather narrowly funnelform, 1.8 to 2 cm. high; free portion of filament about equalling the tube: style slender, greenish; stigma slightly overtopping the anthers: ovary sessile, bearing two ovules in each cell. — MEXICO. State of Hidalgo: hillsides near Tula, altitude 1100 m., 20 July, 1896, *C. G. Pringle*, no. 6371 (hb. Gr.).

Sisyrinchium bracteatum. Roots tuberous, fascicled: scapes 1 to 2 dm. high, simple below, branched above, erect or very slightly flexuous, hirsutish-pubescent to nearly glabrous: leaves linear-attenuate, 0.5 to 1.5 dm. in length: inflorescence branched, bearing several short-pedunculate spathes; peduncles mostly less than 1 cm. (rarely 1.5 cm.) long; bracts of the inflorescence foliaceous, 6 cm. or less in length, ciliate: spathe of two slightly unequal bracts, 13 to 16 mm. in length, rather strongly nerved, glabrous, the inner bract usually somewhat exceeding the outer: flowers of the spathe 2 to 4: perianth yellow; ovary

at first glandular pubescent: capsule oblong, triangular, 5 to 8 mm. long, hispidulous: seeds small, round, about 1 mm. in diameter; surface slightly honeycombed. — MEXICO. State of Oaxaca: in dry thin soil, Cuesta de San Juan del Estado, altitude 1850 m., 20 August, 1894, *C. G. Pringle*, no. 4831 (hb. Gr.), distributed as "*Sisyrinchium Hartwegii*, Baker form"; Valley of Etla, altitude 1660 m., 2 July, 1895, *L. C. Smith*, no. 556 (hb. Gr.). Federal District: lava fields near Tlalpam, altitude 2250 m., 16 August, 1902, *C. G. Pringle*, no. 8656 (hb. Gr.). The species here described is distinguished from *Sisyrinchium Hartwegii*, Benth., which is apparently the same as *S. tenuifolium*, Humb. & Bonpl., by the less branched and less flexuous scapes, the short-pedunculate spathes, and finally by the hirsutish character of the upper part of the scape and inflorescence.

Sisyrinchium Palmeri. Roots tuberous, fascicled, 2 to 3 cm. long, 5 to 7 mm. thick in the dried state: leaves linear-attenuate, 0.5 to 2.5 dm. long, somewhat sheath-like below and more or less purplish just above the base, smooth and glabrous: scape 1.2 to 2 dm. high, flattened, usually narrowly winged, branched above, bearing 2 to 4 pedunculate inflorescences: peduncles 1.5 to 4 cm. in length, mostly exceeding the nodal bract: spathes of two slightly unequal bracts, 1.5 to 2 cm. long, 3–7-flowered: pedicels 2.5 cm. or less in length: perianth yellow, 1.5 to 2 cm. in diameter: ovary glabrous: capsule oblong, 6 mm. long, 4 mm. thick, rather sharply 3-angled, smooth and glabrous: seeds about 1 mm. long and broad. — MEXICO. State of Jalisco: Rio Blanco, June, 1886, *Dr. Edward Palmer*, no. 18 (hb. Gr.); gravelly plains near Guadalajara, 15 July, 1902, *C. G. Pringle*, no. 8644 (hb. Gr.).

SISYRINCHIUM QUADRANGULATUM, Klatt, Linnæa, xxxii. 284. Specimens secured by Mr. C. G. Pringle on Mt. Orizaba, Mexico, at an elevation of 4000 m., 1901, no. 8566 (hb. Gr.), accord well with the original characterization of the above species, which was based upon plants collected by Liebmann on Mt. Orizaba in 1841. It may be said, however, that the color of the perianth in Mr. Pringle's specimens is distinctly blue, not yellow as was stated by Klatt to be the color of the flowers in the Liebmann plant. There is in the Gray Herbarium a specimen from the Liebmann collection, which was obtained on Mt. Orizaba at an elevation of 3000 m., and the label accompanying this plant bears the name "*Sisyrinchium scabrum*, Schlecht., var. *exaltatum*." Although this specimen was determined by Klatt, it does not seem to have been cited byhim in Linnæa xxxii. under the name which it bears. It seems altogether probable that the Liebmann plant in the Gray

Herbarium, here alluded to, represents a part of the type of *S. quadrangulatum*, Klatt, as it answers perfectly to the description. With it, moreover, Mr. Pringle's specimens are an excellent match. The species seems well characterized by the linear grass-like leaves, and the pyriform glabrous fruit, fully twice longer than in *S. angustifolium*, Mill., and its related forms.

SISYRINCHIUM TENUIFOLIUM, Humb. & Bonpl., var. **Seatoni.** Stems about 1 dm. high, much-branched, glabrous: leaves equalling or exceeding the inflorescence, slender, subfiliform: capsule pubescent. — MEXICO. State of Vera Cruz: Mt. Orizaba, altitude 2770 m., 9 August, 1891, *Henry E. Seaton*, no. 483 (hb. Gr.). State of Puebla: hillsides above Chalchicomula, altitude 2615 m., 27 July, 1901, *C. G. Pringle*, no. 9533 (hb. Gr.).

The variety *Seatoni* differs from the species chiefly in the lower stature, and in the filiform character of the leaves.

Habenaria oreophila. Glabrous throughout: stem erect, leafy, 7 to 8 dm. high: leaves oblong-lanceolate, 1 to 1.5 dm. long, 3 to 3.5 cm. broad, apiculate-acute, entire, membranous; the lowermost leaves reduced to mere sheaths, the uppermost gradually smaller: inflorescence a terminal elongated loose 2 to 3 dm. long raceme; bracts subfoliaceous, lanceolate-acuminate, about equalling the ovary: upper sepal ovate, cucullate, 8 mm. long, 3-nerved; lateral sepals oblong-lanceolate, slightly oblique, obtuse, 3-nerved: lateral petals deeply 2-parted; the upper division lanceolate, upwardly arched, shorter than and coherent with the upper sepal; lower division bent downward, linear-attenuate and somewhat coiled at the tip: labellum deeply 3-parted; the middle lobe ligulate, slightly thickened, 11 to 13 mm. long, obtuse; lateral divisions linear-attenuate, 2.5 cm. long, more or less spirally coiled at the free ends: spur clavate, free, 4 to 4.5 cm. long: column bearing fleshy oblong appendages at the base: ovary narrowly winged. — MEXICO. State of Guerrero: mountains near Iguala, 15 September, 1900, *C. G. Pringle*, no. 9248 (hb. Gr.).

The affinity of this species is with *Habenaria jaliscana*, Watson, and *H. leucæcapensis*, Fernald. From the former it is readily distinguished by the height, the longer leaves, the longer spur, and by the entire absence of the falcate character of the lateral divisions of the labellum; and from the latter it differs in having much longer and narrower leaves.

CORALLORHIZA INVOLUTA, Greenm., Proc. Am. Acad. xxxiii. 474. Specimens secured by Mr. C. G. Pringle on hills near Amozoc, State of Puebla, MEXICO, at an altitude of 2600 m., 10 September, 1901,

no. 9632 (hb. Gr.), agree in all essential characters with the type of the above species, which was collected in the State of Oaxaca. The specimens obtained in Puebla, however, represent a more advanced stage of development, the plants being 3.5 dm. high, and the oldest flowers are reflexed, showing the immature 1.5 cm. long capsule.

Hexalectris mexicana. Glabrous and purplish throughout: stems 1 to 4.5 dm. high, bearing below 2 to 4 short sheathing bracts, simple and terminating in a racemose inflorescence: floral bracts ovate, 6 to 12 mm. long, short-acuminate, acute, one-half to one-third shorter than the ovary: flowers purple, at first erect-ascending, later reflexed; lateral sepals oblong-lanceolate, 12 to 14 mm. long, 4 to 6 mm. broad, obtuse, somewhat falcate, 5-nerved, upper sepal oblong-lanceolate, 14 to 18 mm. long, 4 to 5 mm. broad, obtuse; lateral petals oblong-oblanceolate, 12 to 16 mm. long, obtuse and slightly oblique: labellum obovate in general outline, rather deeply 3-lobed, abruptly narrowed at the base into a distinct claw, 5-nerved from the base, bearing a pair of partially united lamellæ on either side opposite the lateral sinus; lateral lobes obliquely ovate, obtuse; terminal lobe oblong-cuneate, 10 to 12 mm. long, rounded or retuse at the apex: immature capsule 12 to 16 mm. long, 8 to 10 mm. broad. *Hexalectris aphylla*, Hemsl. Biol. Cent.-Am. Bot. iii. 213 in part, not *Bletia aphylla*, Nutt.; Watson, Proc. Am. Acad. xviii. 159, excluding synonym. *H. aphyllus*, W. J. Robinson, Torreya. iii. 120 in part, as to plant of Schaffner. — MEXICO. State of San Luis Potosi: in mountains near San Miguelito, *Shaffner*, no. 316 (516?) (hb. Gr.); region of San Luis Potosi, altitude 1800–2400 m., *Parry & Palmer*, no. 861 (hb. Gr.). State of Coahuila: Sierra Madre, 6.5 kilometres south of Saltillo, July, 1880, *Palmer*, no. 2006 (hb. Gr.). State of Chihuahua: cañons of Sierra Madre, 5 October, 1887, *Pringle*, no. 1514 (hb. Gr.). State of Oaxaca: Cerro de Huauclilla, altitude 2500 m., 20 June, 1901, *Conzatti & González*, no. 1255 (hb. Gr.).

With the exception of the last, all the above cited specimens have been hitherto regarded as identical with *Hexalectris aphylla*, Raf., but all the Mexican material thus far examined by the writer proves to be quite distinct from that species. *Hexalectris mexicana* differs from *H. aphylla*, Raf., in its somewhat smaller average size, slightly smaller flowers, less conspicuously nerved parts of the perianth, shorter, smaller and more deeply 3-lobed labellum. The labellum, moreover, in *H. mexicana* bears only 2 to 4 lamellæ and these are opposite the lateral sinuses; while in *H. aphylla* the labellum is 5-(6-)lamellate from below the lateral sinuses, and the median fold is more or less continuous to the apex of the middle lobe.

BLETIA MACRISTHMOCHILA, Greenm., Proc. Am. Acad. xxxii, 297. Flowering and fruiting specimens of this attractive orchid were secured by Mr. C. G. Pringle during the past season, on banks of ravines near Guadalajara, MEXICO, no. 8640 (hb. Gr.). From Mr. Pringle's recently collected material it may be noted that the mature capsule is about 5 cm. in length and 1 cm. in diameter.

Celtis platycaulis. Fruticose : stems and branches flattened, covered with a reddish-brown bark, bearing single, curved, 5 to 6 mm. long spines : leaves ovate to obovate, 3 to 5 cm. long, 1.5 to 3 cm. broad, acute to rounded at the apex, usually serrate from near or just above the middle to the apex, entire in the lower half, rarely entire from base to apex, 3-nerved, in the very young stages puberulent, but soon becoming glabrous or essentially so; petioles 4 to 5 mm. long, and as well as the ultimate branches puberulent: the cymose inflorescences of the male flowers twice or more exceeding the petioles : fertile flowers few, borne at the tips of the branches; ovary puberulent; style branches bifurcated: mature fruit not seen. — MEXICO. State of Morelos : volcanic hills near Yantepec, altitude 1230 m., 5 July, 1901, *C. G. Pringle*, no. 8535 (hb. Gr.).

OXYBAPHUS VISCOSUS, L'Her., in Willd. Sp. i. 185; Choisy in DC. Prodr. xiii. 2, 430. Specimens collected by Mr. C. G. Pringle at Tehuacan, MEXICO, 1901, no. 8600 (hb. Gr.), agree in all important characters with typical representatives of the above species. In Mr. Pringle's specimens, however, the perigonium is considerably larger than is described and figured for *O. viscosus*, L'Her.; but this slight difference is supplemented by no other evident character, hence it seems best for the present at least to regard the Pringle plant as a mere form of the species here mentioned.

Ribes Dugesii. A much-branched shrub : stem covered with reddish-brown bark, glabrous; branchlets finely pubescent: leaves petiolate, ovate-rotund, shallowly 3–5-lobed, doubly crenate-serrate, 3–7-nerved from a cordate base, green and glabrous above, paler and somewhat glandular-pubescent beneath, especially on the prominent nerves; petioles 1 to 3 cm. long, and as well as the inflorescence minutely puberulent with stipitate glands intermixed, dilated at the base into a more or less glandular-ciliate expansion : racemes pedunculate, borne at the ends of young terminal branches and lateral shoots, 3 to 6 cm. long, suberect or somewhat drooping; pedicels 1 to 10 mm. long, jointed above, naked or bibracteate at the joint: flowers 1 cm. or less long : calyx subcampanulate, white or more or less roseate, 5-lobed for about one-half its length;

lobes oblong, 3 to 4.5 mm. long, slightly inflexed at the acutish tip, in the later stages recurved: petals subreniform, entire, 2 mm. long, equally broad, white: stamens as long as the petals; filaments about equalling the anthers: ovary glabrous: mature fruit not seen. — MEXICO. State of Guanajuato: mountains of Santa Rosa near the City of Guanajuato, March, 1901, and 1902, *Professor Alfredo Dugès*, no. 352*a* (hb. Gr.).

In the leaf-outline *R. Dugesii* suggests *R. viscosissimum*, Pursh, of western North America; but the two species have quite different flowers and pubescence. The affinity of *R. Dugesii* is evidently with *R. campanulatum*, Humb. & Bonpl. in Roem. & Schultes, Syst. v. 500 (1819); it differs, however, from this species in the character of the petioles, and in the absence of a hirsute pubescence on the under leaf-surface. From *R. ciliatum*, Humb. & Bonpl. l. c. (*R. jorullense*, HBK. Nov. Gen. & Sp. vi. 61) *R. Dugesii* is readily separated by the more rotund, less deeply and more obtusely lobed leaves.

Cassia longicoma. Stems herbaceous, erect or nearly so from a ligneous base, 1 to 3 dm. or more high, and as well as the petioles and peduncles pubescent with short reflexed hairs with which are intermixed long horizontally spreading pilose hairs: leaves 6-foliolate; petioles 1.5 to 3.5 cm. long; stipules linear-setaceous, 4 to 9 mm. in length, pubescent; leaflets short-petiolulate, oblong or obovate-oblong, more or less oblique, 1 to 4 cm. long, 0.5 to 2 cm. broad, rounded or obtusish at the apex and short-mucronate, entire, densely appressed-pubescent on both surfaces: peduncles axillary, 4 to 7.5 cm. long, mostly 3-flowered; pedicels about 1 cm. long: flowers nodding or erect, 1.5 to 2 cm. in diameter when fully expanded; sepals oblong, 8 mm. long, 3 mm. broad, obtuse or rounded at the apex, the outer surface pubescent; petals yellow, obovate, narrowed at the base into a short claw, rather conspicuously 3–5-nerved from the base; perfect stamens 7, subequal; staminodia 3; ovary densely sericeous-pubescent: legume 6 to 8 cm. long, 5 to 6 mm. broad, appressed-pubescent with somewhat scattered hairs: seeds ovate, short-acuminate, 3 to 4 mm. in length, slightly corrugate-pitted, and with a single central rather deep pit on either surface. — MEXICO. State of Morelos: Jojutla, altitude 1000 m., 12 June, 1901, and 30 August, 1902, *C. G. Pringle*, nos. 9674, 8665 (hb. Gr.).

Cassia morelensis. Fruticose: stem and branches covered with a grayish bark: ultimate branchlets terminating in a rather firm spine, glabrous or sparingly appressed-puberulent: leaves small, including the canaliculate subappressed-puberulent petiole 8 to 12 mm. long; leaflets 3–4-paired, short-petiolulate, obovate or oblong-obovate, 3 to 5 mm. long,

two-thirds as broad, submucronate, essentially glabrous on both surfaces, or distinctly appressed-puberulent beneath: inflorescence paniculate or terminating the lateral branches in few-flowered corymbose clusters: flowers large, 5 cm. in diameter when fully expanded: sepals glabrous, strongly unequal, the larger about 1 cm. long, ovate-subrotund or slightly oblong, the smaller ovate-oblong, about 5 mm. in length, somewhat boat-shaped: petals yellow, obovate-oblong to distinctly oblong, 2.5 cm. long, 1.5 cm. broad, abruptly narrowed at the base into a 3 mm. long claw, 3-nerved from the base: stamens unequal: ovary glabrous, many-ovuled: legumes 2 dm. long, about 8 mm. wide, reticulate-veined, glabrous, somewhat granulose or dotted with minute blisters. — MEXICO. State of Morelos: near Jojutla, altitude 3000 feet, 12 May, 1901, *C. G. Pringle*, no. 9642 (hb. Gr.).

The affinity of the species here proposed is clearly with *C. Galeottiana*, Mart. & Gal., from which, however, it is distinguished by the armed character of the lateral branches, the smaller, nearly or quite glabrous leaflets, the appressed nature of the pubescence, and finally by the elongate-linear not oblong legume.

Desmodium Seatoni. *D. subsessile*, Seaton, Proc. Am. Acad. xxviii. 118 (1893), not Schlecht., in Linnæa, xii. 319.

Desmodium xylopodium. Stems several from a suffruticose base, ascending or suberect, 3 to 6 dm. in length: leaves unifoliolate; petioles 4 to 8 mm. long, and as well as the stem uncinulate-hispidulous; stipules obliquely ovate, acute, strongly nerved, caducous; the single terminal leaflet ovate to oblong, 8 to 27 mm. long, 5 to 15 mm. broad, rounded or retuse and often mucronate-apiculate at the apex, entire, slightly revolute-margined, rounded or subcordate at the base, nearly or quite glabrous above, prominently veined and slightly puberulent beneath; stipels subulate, persistent; petiolules scarcely more than 1 mm. in length: inflorescence racemose or paniculate, terminating the stem; pedicels slender, usually in pairs, 6 to 8 mm. long; bracts caducous: flowers small, about 5 mm. long, purple: legumes at first minutely puberulent, later becoming glabrous, 1–2-jointed; joints suborbicular or slightly oblong, 3 to 4 mm. long, nearly or quite as broad, rather strongly reticulate-veined. — MEXICO. State of Jalisco: near Guadalajara, altitude 1500 m., 13 May, 1901, *C. G. Pringle*, no. 9657 (hb. Gr.).

The affinity of this species seems to be with *Desmodium guadalajaranum*, Watson, from which it is readily distinguished by the smaller leaflets, and by the absence of spreading or subvillous hairs on the leaf-surface.

Croton flavescens. Fruticose, 2 to 2.5 m. high: stem branched, covered with a brownish bark; ultimate branches subangular-compressed, finely stellate-pubescent: leaves alternate, petiolate, ovate to somewhat rhombic-ovate, 4 to 13 cm. long, 3 to 7.5 cm. broad, subrotund to acuminate at the apex and terminated by a mucro, cordate to obtuse at the base, stellate-pubescent on both surfaces more densely so beneath, yellowish-green; petioles 1 cm. or less in length: inflorescence terminating the branchlets in monœcious spicate racemes, 5 to 6 cm. in length: pistillate flowers clustered at the base of the spike; calyx-divisions triangular-ovate, acute; style-branches deeply 2-parted, strongly recurved over the densely stellate-pubescent ovary: capsule nearly or quite 1 cm. long, 8 to 9 mm. in diameter, obtusely 3-angled, somewhat verrucose, closely stellate-pubescent; carpels slightly compressed above: seeds elliptic-oblong, 6 mm. long, 3 mm. broad, smooth; caruncle 1.5 mm. broad, 2-lobed. — MEXICO. State of Michoacan: volcanic hills, Monte Leon Station, altitude 1540 m., 29 August, 1902, *C. G. Pringle*, no. 8667 (hb. Gr.).

In general aspect *C. flavescens* resembles certain forms of *C. morifolius*, Willd., but it is readily distinguished by the longer less globose and more distinctly triangular capsule. The branches of the stellate hairs in *C. flavescens* are shorter than in *C. morifolius*, and the tomentum is more or less deciduous revealing the subverrucose character of the surface of the capsule.

Croton Gonzalezii. Fruticose: stem and branches covered with a grayish bark; branchlets cinereous-stellate-pubescent: leaves short-petiolate, ovate, 2 to 4 cm. long, one-half as broad, mostly acuminate, obtuse and short-mucronate, inconspicuously denticulate, rounded or subcordate at the base, at first minutely stellate-pubescent on both surfaces especially beneath, later glabrate, 3–5-nerved from the base; petioles 2 to 5 mm. long, densely stellate-pubescent: inflorescence terminating the stem and branches in monœcious 1.5 to 3 cm. long spicate racemes; bracts about 1 mm. long, acute, spreading and persistent: calyx at first stellate-pubescent, later glabrate: petals elliptic-oblong, narrowed and ciliate at the base, 1-nerved: stamens about 14; filaments glabrous: capsule 5 mm. long, closely stellate-pubescent. — MEXICO. State of Oaxaca: Cuicatlan, altitude 600 m., 16 September, 1899, *C. V. González*, no. 980 (hb. Gr.).

In general habit *Croton Gonzalezii* resembles *C. Sonoræ*, Torr. (*C. Pringlei*, Watson), but differs markedly in the finer stellate tomentum of leaves and fruit, and in the shorter petioles.

Acalypha oreopola. Stem branched, purplish, bifarious-puberulent: leaves petiolate, ovate, 1.5 to 5 cm. long, 1 to 3 cm. broad, acuminate, acute, shallowly serrate-dentate, short-cordate, glabrous upon both surfaces, pellucid-punctate, 3–7-nerved; petioles 0.5 to 3 cm. long, canaliculate, crisp-puberulent, purplish: inflorescence in terminal or axillary rather remotely flowered glabrous spikes: bracts of the fertile flowers 2 to 3 mm. long, glabrous and pellucid-punctate, 3–6-lobed with triangular-acute lobes, 1–3-flowered: calyx deeply 3-parted; divisions ovate, acute, sparingly pubescent: ovary hirsute above; styles pectinately divided: capsule triangularly and obtusely 3-lobed, about 2 mm. long, muricately hispid above: seeds about 1 mm. long, smooth. — Mexico. State of Guerrero: mountains near Iguala, 10 October, 1900, *C. G. Pringle*, no. 9265 (hb. Gr.).

Jatropha Pseudo-Curcas, Muell. Arg. in Linnæa, xxxiv. 208, and in DC. Prodr. xv. 2, 1080; Hemsl. Biol. Cent.-Am. Bot. iii. 108. Specimens agreeing well with the description of this species were collected by *C. Conzatti* and *V. González* at Cercanias de Oaxaca, State of Oaxaca, altitude 1550 m., June, 1901, no. 1207 (hb. Gr.). The leaves in the specimens secured by Señors Conzatti and González are somewhat larger than is ascribed to the species by Mueller, having in many cases leaves fully 2 dm. long and nearly or quite as broad. The fruit characters, which seem not to have been recorded hitherto, may be here presented, as follows: capsule oblong, 2 to 2.5 cm. long, 1 to 1.5 cm. in diameter, abruptly short-acuminate, subtriangular, smooth and glabrous: seed oblong-elliptic, rather conspicuously carunculate, smooth and shining.

Manihot caudata. A small tree, 4 to 5 m. high: stem covered with a brown or grayish-brown cortex: branches leafy at the summits: leaves alternate, petiolate, ovate-rotund in general outline, cordate, palmately and deeply 3–7-lobed, pale green and glabrous on both surfaces; lobes or divisions obovate to oblong, 3 to 9 cm. long, 2 to 4.5 cm. broad, abruptly and conspicuously caudate-acuminate, entire; the outer lower lobes more or less oblique and usually horizontally spreading; petioles 8 to 14 cm. long, terete or slightly canaliculate, and as well as the peduncles, pedicels and lower leaf-surface near the nerves more or less glaucous: racemes short, axillary, 5 to 6 cm. long in the fruiting stage; pedicels 1.5 to 3 cm. long: capsule 18 to 22 mm. in length: seeds oblong, flattened, 12 to 15 mm. long, 8 to 12 mm. broad, more or less mottled with brown or brownish-black subhorizontal markings; caruncle broader than long. — *Manihot* ———?, Watson, Proc. Amer. Acad. xxi. 440. —

MEXICO. State of Chihuahua: Hacienda San Miguel near Batopilas, September, 1885, *Dr. Edward Palmer*, no. 201 (hb. Gr.). State of Michoacan: volcanic hills, Monte Leon, 21 August, 1902, *C. G. Pringle*, no. 8687 (hb. Gr.).

EUPHORBIA CUMBRÆ, Boiss. Cent. Euph. 16, and in DC. Prodr. xv. 2, 48. Specimens agreeing in all details with this species, except that the glands of the involucre are either minutely appendaged or with the appendage wanting, were collected by Messrs. C. Conzatti and V. González in the State of Oaxaca, MEXICO, altitude 1900 m., July–August, 1900, no. 1040 (hb. Gr.).

Euphorbia (§ **Hypericifoliæ**) **rubida.** An herbaceous perennial: stems several, slender, 1.5 to 2.5 dm. long, ascending from a stout ligneous base, somewhat dichotomously branched, terete, reddish, crisp-puberulent: leaves opposite, short-petiolate, oblong, 5 to 23 mm. long, 2 to 8 mm. broad, rounded at the apex, sharply serrulate, oblique and subcordate at the base, sparingly pubescent on both surfaces with fine spreading hairs, often reddish, especially beneath; petioles 1 to 2 mm. long: inflorescence terminating the stem and branches in rather close cymules: involucre small, 1 to 1.5 mm. high; glands 4, bearing narrow crenate-margined appendages, these as well as the involucre mostly deep red in color: capsule obtusely triangular, 2 mm. long, equally broad, pubescent with somewhat spreading crisp-pilose hairs: seeds oblong-ovate, 1 mm. long, subquadrangular, grayish, slightly rugulose on the surfaces. — MEXICO. State of Mexico: dry ledges, Tultenango Cañon, 9 October, 1902, *C. G. Pringle*, no. 8673 (hb. Gr.).

E. rubida is perhaps most closely related to *E. Preslii*, Guss., but differs in having a distinctly perennial base, and in the pubescent character of the capsule.

CUPHEA ÆQUIPETALA, Cav., var. **epilosa.** Stems short-pubescent along decussating lines, not pilose-hispid. — MEXICO. State of Puebla: on hills near Amozoc, altitude 2500 m., 10 September, 1901, *C. G. Pringle*, no. 9628 (hb. Gr.). The variety *epilosa* differs from typical forms of the species in the absence of the purplish pilose-hispid hairs commonly found on the stem.

Erythræa micrantha. An erect, much-branched annual, 4 to 5 dm. high, glabrous throughout: stem and branches somewhat 4-angled: leaves sessile; the lower oblong-elliptic, 2 cm. long, 6 to 7 mm. broad, obtuse, entire, 3-nerved; the upper leaves similar or slightly spatulate, gradually reduced on the stem above: inflorescence terminating the dichotomously branched stem and branches in a compound cyme: pedicels

0.5 to 1.5 cm. long: flowers small, in anthesis 5 to 6 mm. long: calyx 2 to 3 mm. long; lobes lance-linear, acute: corolla purplish or purplish-crimson in the dried state, 5-lobed; lobes oblong-ovate or somewhat rotund, 2 mm. long, 1 to 1.5 mm. broad: both calyx and corolla somewhat elongating with the maturing fruit: capsule about 7 mm. long, twice as long as the persistent calyx. — MEXICO. State of Jalisco: wet soil, near Guadalajara, altitude 1540 m., 12 May, 1901, *C. G. Pringle*, no. 8482 (hb. Gr.).

Lachnostoma gonoloboides. Stem twining, densely pubescent with soft spreading or sometimes slightly reflexed hairs: leaves petiolate, oblong-ovate to lanceolate or somewhat halberd-shaped, 5 to 8 cm. long, 2 to 3.5 cm. broad, acuminate, acute, entire, cordate at the base with a broad open sinus, hirsute-pubescent on both surfaces, and especially on the prominent midrib and nerves beneath, dark green above, paler beneath; petioles 2 to 4 cm. long, pubescent: inflorescence axillary, umbellate; peduncles 12 to 15 mm. long; pedicels 2 to 3 cm. long: calyx divided nearly to the base; lobes oblong- to slightly rhombic-lanceolate, 8 to 12 mm. long, 3 to 4 mm. broad, obtuse or acutish, entire, externally hirsute-pubescent: corolla white, tubular or tubular-campanulate, 1.5 to 2 cm. high, pubescent in the throat; tube slightly exceeding the ovate obtuse externally pubescent greenish reticulate lobes: crown thickish, adnate to the corolla-tube, slightly crenate-margined: gynostegium 7 mm. high: fruit not seen. — MEXICO. State of Chihuahua: in the Sierra Madre, near Seven Star Mine, altitude 2450 m., 7 September, 1899, *Townsend & Barber*, no. 409 (hb. Gr.). A species with a distinctly gonolobus-like habit; but on account of the tubular-campanulate corolla, the elongated gynostegium, and the pendulous or somewhat oblique pollen-masses the plant is placed rather under the genus *Lachnostoma*.

IPOMŒA BARBATISEPALA, Gray, Syn. Fl. ii. pt. 1, 212. To this species are to be referred specimens collected in the State of Oaxaca, MEXICO, at an altitude of 1650 m., December, 1900, *Conzatti & González*, no. 1094 (hb. Gr.). The above species has been known hitherto only from the region of western Texas and Arizona.

IPOMŒA ORNITHOPODA, Robinson, Proc. Am. Acad. xxvii. 183. Specimens collected by Mr. C. G. Pringle in the Yantepec Valley, State of Morelos, MEXICO, altitude 1075 m., 17 June, 1901, no. 9645 (hb. Gr.), agree in all essential details with the original of the above species. The specimens from Yantepec Valley, however, show a considerable variation in the foliage, particularly as to the breadth of the leaf-lobes,

which are frequently 1.5 cm. broad. To this species is also to be referred Dr. Edward Palmer's no. 781 (hb. Gr.), from Agiabampo, State of Sonora, collected in 1890.

CUSCUTA EPITHYMUM, Murr., in L. Syst., ed. 13, 140. This European species, collected in the Valley of Mexico, altitude 2250 m., 27 June, 1901, by *Mr. C. G. Pringle*, no. 8514 (hb. Gr.), seems not to have been hitherto reported from Mexico.

Phacelia madrensis. Perennial, subacaulescent, hirsute-pubescent throughout, not glandular-viscid: leaves mostly clustered at the end of an ascending or erect rootstock, pinnatifid, 1 to 4 dm. long; segments 7 to 9, obovate or cuneate, coarsely and rather deeply toothed, 8 to 22 mm. long, 5 to 15 mm. broad, terminal segment somewhat larger, the lowermost remote: inflorescence equalling or exceeding the leaves: flowers scattered, mostly remote, on pedicels 8 to 16 mm. long: calyx of 5 slightly unequal lanceolate, acute, or obtusish sepals: corolla campanulate, 10 to 12 mm. in diameter, pale blue or whitish; tube about equalling the broad semirotund lobes; folds of the corolla-tube not diverging at their free tips, puberulent along their margins: filaments hirsute-pubescent: ovary conspicuously hirsute, about 16-ovulate; style divided nearly to the base. — MEXICO. State of Chihuahua: Sierra Madre, near Colonia Garcia, altitude 2300 m., 2 July, 1899, *Townsend & Barber*, no. 100 (hb. Gr.).

The species here described belongs to the section *Eutoca*, and is apparently most nearly related to *Phacelia rupicola*, Rob. & Fern., and *P. pimpinelloides*, Gray. From the former it differs in the foliar characters, the shorter pubescence, smaller calyx-lobes, and finally by the approximate not divergent folds of the corolla-tube. From the latter species, namely, *P. pimpinelloides*, Gray, the species here proposed is readily distinguished by the spreading not appressed pubescence.

Nama parvifolium. Low depressed annual, 0.5 to 1.5 dm. high, cinereus-hirsute-pubescent throughout: stems prostrate or ascending, more or less dichotomously branched: leaves broadly spatulate, or somewhat oblong-spatulate, 0.5 to 1.5 cm. long, 3 to 6 mm. broad, obtuse, entire, contracted below into a narrowly winged petiolar base: flowers axillary, solitary or in pairs on unequal frequently curved slender 2 to 5 mm. long pedicels: calyx deeply 4–5-parted; divisions linear, acutish, 4 to 5 mm. in length, not dilated at the tip, hirsute-pubescent with hairs of unequal length: corolla 8 to 10 mm. long, white, or somewhat violet, subequally 5-lobed: ovary pubescent: mature capsule oblong, obtusish, 4 mm. long, pubescent. — *Nama rupicolum*, Pav., acc. to Hemsl. Biol.

Cent.-Am. Bot. ii. 362, in part. *N. rupicola*, Gray, Proc. Am. Acad. viii. 284, & xviii. 119, in part, not Bonpl. acc. to Choisy. *N. origanifolia*, Gray, Proc. Am. Acad. v. 337, in part, not HBK. *N. dichotoma*, var. *parvifolia*, Torr. Mex. Bound. 147. — MEXICO. State of Tamaulipas: de Santander à Victoria, *Berlandier*, nos. 834, 2254 (hb. Gr.); San Fernando to Jimeney, 26–27 February, 1902, *E. W. Nelson*, no. 6606 (hb. Gr., and hb. U. S. Nat. Mus.). State of Nuevo Leon: Monterey, *Eaton & Edwards* (hb. Gr.). State of Chihuahua: Santa Rosa, *Bigelow* (hb. Gr.). State of Coahuila: Soledad, *Palmer*, no. 2023 (Coll. of 1880, hb. Gr.); Valley of the Rio Grande, near Piedras Niegras, 19 April, 1900, *C. G. Pringle*, no. 9173 (hb. Gr.). Yucatan: without locality, *Schott* (hb. Gr.).

This species has been hitherto confused with *N. origanifolium*, HBK., and *N. rupicola*, Bonpl., which are both species with distinctly suffruticose stems, while *N. parvifolium* is an annual. From the former, namely, *N. origanifolium*, the species here proposed is readily distinguished by the broader leaves and larger flowers; and from the latter, namely, *N. rupicola*, by the cinereous-hirsute character of the leaves, not densely white-tomentose on the under surface, and by the larger flowers, lance-linear not spatulate calyx-divisions.

Cordia stellata. Shrub, much-branched; branchlets, as well as the foliage and inflorescence, densly covered with a canous-stellate tomentum: leaves peticlate, ovate, 2.5 to 10 cm. long, 1.5 to 8 cm. broad, obtuse, irregularly crenate-dentate, cuneate or subcordate at base, and the lamina usually short-decurrent on the petiole, densely canous-stellate-pubescent on both surfaces, paler and rather conspicuously reticule-nerved beneath; petioles 4 to 12 mm. long, channelled above, densely stellate-pubescent; inflorescence terminating the stem and branches in pedunculate spherical heads, 1.5 to 2 cm. in diameter; peduncles 2 to 4 cm. long: calyx obovoid, 5 to 6 mm. long, somewhat inflated, shortly and obtusely 5-dentate: corolla white, more or less salver-shaped, or subcampanulate; tube slightly exceeding the calyx; limb about 1 cm. in diameter, 5-lobed, strongly reticulate-veined. — MEXICO. State of Oaxaca: altitude 615 m., 27 August, 1894, *L. C. Smith*, no. 147 (hb. Gr.); Cuicatlan, altitude 600 m., 16 September, 1899, *V. González* no. 983 (hb. Gr.); about 9.5 kilometers above Dominguillo, altitude 640 m., October, 1894, *E. W. Nelson*, no. 1646 (hb. Gr., and hb. U. S. Nat. Mus.).

In general aspect *Cordia stellata* resembles *C. Pringlei*, Robinson, with which species it has been hitherto confused. The entire plant,

however, is more canescent, the heads somewhat smaller, and the calyx and corolla shorter than in *C. Pringlei*. Moreover, the calyx-teeth in the species here proposed are not setaceous, but short and obtuse; on this character alone the two species can be readily separated.

Lippia chrysantha. Shrub, 1.5 to 2 m. high: stem much-branched, covered with grayish bark; ultimate branchlets hirsute-pubescent: leaves short-petiolate, lanceolate to lance-oblong, 2.5 to 8 cm. long, 1 to 3 cm. broad, acute or obtuse, finely and evenly crenate-dentate, cuneate or rounded at the base, rugose and hirsute-hispid above, soft-tomentose beneath, often showing tendency to become reflexed; petioles 5 mm. or less in length: inflorescence in axillary sessile crowded spikes, much shorter than the leaves, pubescent with spreading hairs intermixed with stipitate glands: floral bracts, lanceolate to somewhat oblanceolate, 6 to 7 mm. long, 2 to 2.5 mm. broad, acute: flowers solitary in the axils of the bracts, short-pedicellate: calyx 1 mm. long, 2-fid, pubescent with long pilose hairs; divisions entire or minutely 2-dentate: corolla 5 to 6 mm. long; tube slender, externally pubescent, gradually expanded above into a 4-lobed yellow or greenish-yellow limb: ovary and style glabrous. — MEXICO. State of Morelos: limestone hills near Yantepec, altitude 1385 m., 26 October, 1902, *C. G. Pringle*, no. 8679 (hb. Gr.).

A species well characterized by the sessile short inflorescences disposed in the axils of the upper leaves. *Lippia Chrysantha* is apparently most nearly related to *Lippia oaxacana*, Rob. & Greenm.

Stachys aristata. An herbaceous perennial: stem erect or ascending from a ligneous base, simple or branched, glabrous and more or less purplish below, puberulent above: leaves petiolate, triangular-lanceolate, 1.5 to 6 cm. long, 0.5 to 2.5 cm. broad, serrate-dentate, conspicuously aristate at the apex, cuneate to subcordate at the base and the lamina decurrent on the petiole, glabrous or slightly puberulent on both surfaces; petioles 0.5 to 4.5 cm. in length: verticillasters usually 6-flowered: calyx narrowly campanulate, puberulent; teeth subulate, nearly or quite equalling the calyx-tube: corolla light purple or whitish tinged with purple, somewhat maculate on the lower lip, about 1 cm. long, twice the length of the calyx; tube of the corolla projecting beyond the calyx; upper lip entire; lower lip 3-lobed: nutlets obovate, glabrous or slightly pubescent above. — MEXICO. State of Jalisco: on river-ledges, Falls of Guanacatlan, 6 August, 1902, *C. G. Pringle*, no. 8623 (hb. Gr.).

Stachys latipes. An erect or ascending herbaceous perennial: stem simple or branched, 2 to 3 dm. high, pubescent with scattered spreading stiff hairs: leaves oblong or slightly oblong-ovate, 1.5 to 3

cm. long, 1 to 1.5 cm. broad, obtuse, crenate-serrate, cuneate at the base into a flattish or narrowly winged ciliate petiole; petioles of the lower leaves nearly or quite equalling the blade, more or less continuous about the stem: verticillasters in the axils of the upper leaves, about 6-flowered: flowers 1 cm. long: calyx pubescent with spreading stiff hairs: corolla nearly twice exceeding the calyx, conspicuously 2-lipped; the 3-lobulate lower lip exceeding the galeate externally pubescent upper lip. — MEXICO. State of Chihuahua: in the Sierra Madre, near Colonia Garcia, altitude 2450 m., 17 July, 1899, *Townsend & Barber*, no. 128 (hb. Gr.).

A species resembling in general habit *S. agraria*, Cham. & Schlecht., from which, however, it is readily distinguished by the oblong cuneate leaves, and by the mostly spreading not reflexed hairs of the stem.

CAPSICUM FRUTESCENS, Linn., var. **lanicaule.** Stems more or less densely lanate-villous-pubescent: leaves ovate to ovate-lanceolate, 3 to 8 cm. long, 1 to 3.5 cm. broad, mostly villous-pubescent especially along the midrib and lateral veins beneath; petioles 0.5 to 3 cm. long: flowers solitary, axillary, nodding in anthesis: fruit oblong or oblong-lanceolate, 2 to 3 cm. long, 1 to 1.2 cm. in diameter. — MEXICO. State of Oaxaca: altitude 1550 m., 5 September, 1899, *V. González*, no. 975 (hb. Gr.). State of Jalisco: near Guadalajara, September, 1886, *Dr. Edward Palmer*, nos. 639, 640, 642 (hb. Gr.).

Señor González's specimens, on account of the copious pubescence of stem and foliage, seem at first sight to represent a distinct species, but the examination of a series of specimens representing *Capsicum frutescens*, L., shows very clearly that this species is sometimes rather conspicuously pubescent, hence it has seemed best for the present at least to regard the González plant as a variety to which may be referred, as somewhat less pubescent forms, the above numbers collected by Dr. Palmer.

BRACHISTUS PRINGLEI, Watson, Proc. Am. Acad. XXV. 159. Hereto should be referred specimens collected at Santa Rosa, Department of Santa Rosa, Guatemala, altitude about 1000 m., *Heyde & Lux*, nos. 3436, 4545 (exsic. John Donnell Smith), distributed as "*Capsicum frutescens*, L." The Guatemalan specimens here cited are somewhat less pubescent than in typical *B. Pringlei*, but in all essential characters they accord well with the original or type of that species. From descriptions of *B. diversifolius*, Miers, the *B. Pringlei* must be very closely related if indeed it does not represent the same species; but until a comparison of the original specimens of the two species can be made, it would not

be wise to suggest more than a close relationship of the two described species.

Solanum polyadenium. Pubescent throughout with hirsute spreading hairs intermixed with densely crowded stipitate glands, heavy scented: tubers white: stems somewhat striate-angled: leaves pinnatisect, 5 to 12 cm. long, 4 to 8 cm. broad, usually auricled at the base by small subfalcate leaves of reduced axillary branches; segments 7 to 9, lance-oblong to ovate, 1.5 to 4 cm. long, 0.5 to 2 cm. broad, somewhat acuminate, obtuse, abruptly contracted below into an oblique subpetiolulate base; intermediate segments much smaller, very unequal, rarely more than a centimeter in length: inflorescence terminating the stem and branches in pedunculate false dichotomous more or less horizontally spreading cymes: flowers several: peduncles 1 to 2.5 cm. long, jointed: calyx 5-parted; segments sublanceolate to somewhat oblong, often abruptly contracted into an attenuated apex, persistent: corolla 5-angled, plicate, about 1 cm. high and 2 cm. broad, white: ovary and style glabrous: fruit conical-ovate, 10 to 13 mm. long, two-thirds to nearly as broad, glabrous. — MEXICO. State of Hidalgo: limestone hills, El Salto Station, 15 September, 1902, *C. G. Pringle*, no. 8692 (hb. Gr.).

Seymeria integrifolia. A much-branched annual, glabrous or slightly puberulent under a lens, somewhat viscid: leaves mostly opposite, linear to subulate-linear, 0.5 to 1.5 cm. long, about 1 mm. broad, entire, glabrous: flowers small, 7 to 8 mm. long, during anthesis nodding on slender naked recurved pedicels: calyx about one-half as long as the fully developed corolla, deeply 5-parted into 5 lance-linear acutish lobes: corolla glabrous; lobes ciliate. — MEXICO. State of Jalisco: on rocky hills near Guadalajara, 13 May, 1901, *C. G. Pringle*, no. 9660 (hb. Gr.).

STENANDRIUM BARBATUM, Torr. & Gray, Pacif. R. Rep. ii. 168, t. 4; Torr. Bot. Mex. Bound. 122. Specimens of this species were collected by Mr. C. G. Pringle on dry hills near Ciudad Juarez, State of Chihuahua, Mexico, at an altitude of 1140 m., 5 May, 1901, no. 8501 (hb. Gr.). Although this species is well known from Texas and New Mexico, through the collections of *Wright*, *Thurber*, *Pope*, *Lemmon*, and *Vasey*, yet it does not seem to have been hitherto reported from Mexico.

Anisacanthus Gonzalezii. Suffruticose: stem much-branched, below covered with a grayish bark, above striate and finely appressed-sericeous-pubescent to nearly glabrous: leaves opposite, short-petiolate, ovate-lanceolate, 2 to 4 cm. long, 0.5 to 1.5 cm. broad, acuminate,

obtuse, entire, glabrous above, usually pubescent along the midrib and lateral veins beneath: inflorescence terminating the stem and branches in leafy-bracted racemose cymes: flowers 1 to 3 in the axils of the bracts: calyx 5-parted to below the middle; tube glabrous; lobes lance-attenuate, 4 to 5 mm. long, ciliate, otherwise glabrous: corolla scarlet, subcylindrical, 3 to 3.5 cm. long, 2-lipped to about one third its length, pubescent on the outer surface: ovary glabrous. — MEXICO. State of Oaxaca: Cuesta de Quiotepec, altitude 1200 m., 3 August, 1895, *L. C. Smith*, no. 695 (hb. Gr.); near Oaxaca City, *Conzatti & González*, June, 1900, no. 1231 (hb. Gr.).

The specimens collected by Mr. L. C. Smith, in the Gray Herbarium, were referred to *Anisacanthus virgularis*, Nees, from which species, however, *A. Gonzalezii* differs in having the pubescence of the stem scattered over the entire surface instead of restricted to definite lines, usually broader leaves which are pubescent along the midrib beneath instead of glabrous, and finally by having a glabrous instead of usually glandular calyx.

Dicliptera inequalis. Stem hirsute-pubescent, with glandular hairs intermixed especially throughout the inflorescence: leaves petiolate, ovate, 3 to 8 cm. long, 1 to 5 cm. broad, acuminate, acute, entire, narrowed at the base into the 0.5 to 2 cm. long petiole, hirsute-pubescent on both surfaces, somewhat paler beneath: inflorescence an elongated racemose-paniculate cyme: the flowers in small heads or floral clusters, terminating the primary and secondary branches and either subsessile or on peduncles 3 cm. or less in length: outer bracts of the involucre, unequal, lanceolate, acute; the inner bracts linear-lanceolate, acute, exceeding the 5-parted calyx: divisions of the calyx lanceolate, acute, about 3 mm. long, longer than the tube: corolla 12 to 20 mm. long, purplish or dark red; tube about twice exceeding the lip: fruit not seen. — MEXICO. State of Morelos: at Cuantla, near Cuernavaca, altitude 1250 m., 30 May, 1901, *C. G. Pringle*, no. 9665 (hb. Gr.).

Dicliptera nervata. Stem and branches obscurely hexagonal, sparingly pubescent: leaves ovate, including the petiole 3 to 6 cm. long, 1 to 2.5 cm. broad, short-acuminate, obtuse or acute, entire, narrowed at the base into a rather short petiole, sparingly pubescent on both surfaces: inflorescence in densely crowded axillary verticillasters: involucre 1-flowered; the two outer bracts of the involucre obovate to obovate-rotund, about 1 cm. long and two-thirds to equally broad, retuse and not unfrequently apiculate, entire, ciliate, pubescent with a few scattered hairs on the outer surface, glabrous on the inner surface, rather con-

spicuously nerved; the two inner bracts of the involucre narrowly lanceolate, slightly exceeding the deeply 5-parted calyx: divisions of the calyx lance-attenuate, inconspicuously ciliate: corolla about 1 cm. long, divided to near the middle: capsule 5 mm. in length, sparingly pubescent: seeds somewhat hispid over the entire surface. — MEXICO. State of Morelos: Cuernavaca, 8 January, 1866, *Bilimek*, no. 344; Cuantla, near Cuernavaca, altitude 1230 m., 31 May, 1901, *C. G. Pringle*, no. 9664 (hb. Gr.).

Jacobinia mollis. Fruticose: ultimate branches densely hirsute-pubescent: leaves petiolate, ovate to ovate-lanceolate, 2 to 9 cm. long, 1 to 4 cm. broad, short-acuminate or little narrowed toward the apex, obtuse or acute with a small mucro, entire or slightly repand, narrowed below into a 0.5 to 1.5 cm. long pubescent petiole, ciliate, dark green and hirsute-pubescent above, paler and subtomentose beneath: inflorescence in short axillary pubescent racemes, shorter than the leaves; bracts and bracteoles triangular-acute, shorter than the 5 to 6 mm. long, closely puberulent calyx; calyx-tube 1.5 mm. long, the posterior lobe much smaller than the other lobes, subulate: corolla 3.5 to 3.7 cm. long, purplish, 2-lipped for about one-half its length, pubescent on the outer surface; upper lip entire or slightly emarginate; lower or anterior lip shortly 3-lobed: style puberulent: mature capsule not seen. — MEXICO. State of Oaxaca: June, 1901, *Conzatti & González*, no. 1229 (hb. Gr.).

Jacobinia oaxacana. Fruticose: stem below covered with a grayish bark; branches and branchlets pubescent at the nodes and along descending lines between the nodes: leaves petiolate, ovate to ovate-lanceolate, 3 to 10 cm. long, 1.5 to 4 cm. broad, usually acuminate, obtusish or apiculate-acute, entire or slightly crenate, ciliate, green and glabrous above except on the nerves, paler and densely pilose on the conspicuous midrib and lateral nerves beneath, narrowed below into a ciliate 0.5 to 2 cm. long petiole; cistoliths lineate; inflorescence in axillary pedunculate few-flowered racemes, mostly shorter than the leaves; bracts and bracteoles small, triangular, acute, shorter than the calyx: flowers sessile: calyx deeply 5-parted, externally puberulent; tube 1 to 1.5 mm. long; lobes lanceolate, acute, the antero- and postero-lateral lobes about 4 mm. long, equal; the posterior lobe much smaller, subulate: corolla 3 cm. long, purple; tube equalling or slightly exceeding the limb; upper posterior lip entire or slightly emarginate, the lower anterior oblong, with short ciliated lobes: style puberulent: mature fruit not seen. — MEXICO. State of Oaxaca: June, 1901, *Conzatti & González*, no. 1230 (hb. Gr.).

RONDELETIA LEUCOPHYLLA, HBK., var. **calycosa.** Habit and foliar characters of the species: inflorescence much contracted, subcapitate; bracts 7 to 12 mm. long, 3 mm. or less broad, acute: calyx-lobes subequal, subfoliaceous, lance-oblong, 6 to 8 mm. long, 1 to 2 mm. broad, obtuse or obtusish. — MEXICO. State of Oaxaca: altitude 1650 m., December, 1900, *Conzatti & González*, no. 1127 (hb. Gr.); City of Oaxaca, altitude 1550 m., *Conzatti*, no. 970 (hb. Gr.). No differences other than the broader bracts of the inflorescence and the larger subfoliaceous calyx-lobes are found to distinguish the variety from the species.

The variety *calycosa* is cultivated in the Botanical Garden of the City of Oaxaca where it grows as a very graceful and decorative shrub.

Bouvardia Conzattii. Shrub: stem and branches covered with a grayish bark; ultimate branchlets smooth and glabrous or minutely puberulent: leaves opposite, ovate to ovate-lanceolate, 1.5 to 4 cm. long, 0.5 to 2 cm. broad, obtuse to subacuminate-acute, entire, slightly hirtellous on the margins, yellowish-green and puberulent above, paler and sparingly puberulent on the midrib and obliquely arched conspicuous lateral veins beneath, abruptly narrowed at the base into short densely puberulent 2 mm. long petioles; stipules lanceolate, 3 to 7 mm. long, lacerate-dentate: inflorescence terminating the stem and branches in close rather few-flowered corymbose cymes; bracts subulate, and as well as the unequal linear-acute 3 to 5 mm. long calyx-lobes, hirtellous-puberulent especially along the margins: corolla red or yellowish-red, 13 to 15 mm. long; tube cylindrical, glabrous on the outer surface, bearing within a ring of hairs one-third its length from the base; lobes short, ovate, acute, about 2 mm. long: stamens included; filaments adnate to the corolla-tube two-thirds its length from the base; anthers subsessile: style glabrous: mature fruit not seen. — MEXICO. State of Oaxaca: altitude 1750 m., July–August, 1900, *Conzatti & González*, no. 1076 (hb. Gr.).

Pæderia Pringlei. Stem woody, twining, 6 m. or more in length; ultimate branches subcompressed, glabrous: leaves opposite, petiolate, ovate or slightly ovate-oblong, 2.5 to 5 cm. long, 2 to 3 cm. broad, usually short-acuminate, acute, at first sparingly pubescent above, later more or less glabrate, hirsute-tomentulose beneath especially along the midrib and lateral nerves: flowers not seen: fruit elliptic-oblong, 10 to 12 mm. long, 6 to 8 mm. broad, smooth and glabrous, bearing above the persistent calyx-teeth; pyrenes separating by, and suspended on a filiform carpophore. — MEXICO. State of Morelos: lava fields near Yantepec, altitude 1385 m., 22 October, 1902, *C. G. Pringle*, no. 8682 (hb. Gr.).

VERNONIA VERNICOSA, Klatt, var. **comosa.** Stem striate, densely pubescent: leaves pubescent on both surfaces with subappressed-hirsute hairs, somewhat glabrate above: other characters of the species.—COSTA RICA. Buissons à Matambér près Nicoya, January, 1900, *Ad. Tonduz*, no. 13,607 (hb. Gr., and hb. Inst. Phys.-Geog. Cost. Ri.).

Eupatoriastrum, n. gen. of *Compositæ* (*Agerateæ*). Heads homogamous, many-flowered. Involucre campanulate; bracts 2–3-seriate. Receptacle convex, chaff-bearing throughout. Corollas equal, regular, shallowly 5-toothed. Pappus of numerous minutely barbellate setæ, disposed in a single row. Achenes linear-oblong, 5-angled. Leaves opposite, petiolate, palmately nerved. Inflorescence in terminal leafy panicles.

E. Nelsonii. Stem striate, slightly puberulent, somewhat stramineous in color: leaves petiolate, remote, broadly ovate, 1 to 2 dm. or more long, 4 to 16 cm. broad, 5–7-nerved from or just above the base, acute or short-acuminate, denticulate to shallowly dentate, rounded at the base, conspicuously netted-veined, sparingly pubescent with scattered crisp hirsutish hairs on both surfaces; petioles 1 to 3 cm. long: heads 1 to 1.5 cm. high, on axillary pedunculate and terminal clusters forming a leafy panicle: involucral scales lance-oblong, acute, externally pubescent: receptacle chaffy throughout with narrow pales slightly broadened toward the tip: corolla a little constricted above the slightly ampliated tube: pappus about equalling the corolla: achenes hirtellous-puberulent along the angles. — MEXICO. State of Oaxaca: Santa Efigenia, altitude 150 m., 18 July, 1895, *E. W. Nelson*, no. 2827 (hb. Gr., and hb. U. S. Nat. Mus.).

In habit and in the character of the paleaceous receptacle this plant resembles *Schistocarpha*, but the style-branches are distinctly those of the subtribe *Agerateæ*, and closely resemble the style-branches in *Eupatorium* near which genus it is provisionally placed.

Stevia collodes. Shrub: ultimate branches reddish, puberulent: leaves linear, or linear-lanceolate, 1.5 to 3.5 cm. long, 1.5 to 3 mm. broad, obtuse, entire, glabrous on both surfaces: inflorescence terminating the stems and branches in few-headed umbellate-cymes: heads about 12 mm. high: involucral scales linear, 8 to 9 mm. long, acuminate, acute, obtusely keeled on the back and, as well as the leaves and young branches, glandular-viscid: flowers much exceeding the involucre: pappus coroniform, consisting of minute scales: corolla white, or slightly reddish-tinged, with a long slender glandular tube, and a rather deeply 5-lobed limb: achenes about 4 mm. long, slightly puberulent along the angles. —

Mexico. State of Puebla: calcareous hills near Tehuacan, altitude 1725 m., 22 August, 1901, *C. G. Pringle*, no. 8570 (hb. Gr.).

Archætogeron purpurascens. An herbaceous perennial, pubescent throughout with mostly appressed-hirsute hairs: stem erect or ascending, simple or branched, 2 to 4 dm. high: lower leaves oblanceolate, 2 to 6 cm. long, 3 to 10 mm. broad, obtuse, subentire to rather conspicuously toothed with remote spreading teeth, the uppermost leaves lanceolate and entire: heads terminating the stem and branches on rather long peduncles, including the rays about 2.5 cm. broad; involucral scales 2–3-seriate, narrowly lanceolate, acuminate, appressed-pubescent: ray-flowers in about 3 series, numerous, deep purple: disk-flowers numerous; pappus coroniform, of united more or less lacerated scales. — Mexico. State of Chihuahua: Sierra Madres, near Colonia Garcia, altitude 2450 m., 27 July, 1899, *Townsend & Barber*, no. 175 (hb. Gr.).

Erigeron adenophorus. Suffruticose: stem branched; branches hirsute, and more or less glandular-pubescent, leafy towards the tip: leaves sessile, crowded, amplexicaul, at first erect or spreading, later reflexed, linear-lanceolate, 1 to 2 cm. long, 2 to 5 mm. broad, mucronate-acute, sparingly dentate with minute spreading subcartilaginous teeth, densely glandular-pubescent intermixed with long jointed flaccid hairs; margins revolute: inflorescence terminating the stem and branches in dense round-topped corymbose cymes: heads about 1 cm. high: involucre campanulate; bracts 3–4-seriate, lance-linear, acute, the outer densely pubescent with long jointed subflaccid and somewhat matted hairs, the inner terminated by a glabrous purplish tip: ray-flowers mostly 2-seriate; achenes strongly compressed, with thick nerviform margins and a single nerve on either surface, puberulent; corolla-tube slender, puberulent, slightly ampliated and expanded above into a purplish minute inconspicuous ligule, or remaining essentially tubular; style included: disk-flowers numerous; the 5-toothed limb of the corolla deep purple at least in the dried state; achenes like those of the ray-flowers. — *Senecio eriocephalus*, Klatt, Bull. Soc. Bot. Belg. xxxi. 212 (1892), and Leopoldina xxxi. (1895) Beiblatt, p. 7. — Costa Rica. Entre le Rancho del Jaboncillal et le sommet de Cerro de Buenavista, et les roches, altitude 3100 m., 19 January, 1891, *H. Pittier*, no. 3425 (hb. Gr.).

A careful examination of the type of *Senecio eriocephalus*, Klatt, shows very clearly that the plant is widely remote from *Senecio;* its affinity is rather with *Erigeron* and *Conyza*. Because of the comparatively small number of ray-flowers and the character of the same, namely the included style, and the distinctly nerviform margins of the compressed achene, it

is placed under *Erigeron*. Owing to the several discrepancies between Klatt's published description and the original specimen an entirely new characterization is here drawn.

ERIGERON REPENS, Gray, Syn. Fl. i. pt. 2, 17. Specimens collected by Mr. C. G. Pringle on sand dunes near the City of Vera Cruz, Mexico, 22 June, 1901, no. 9673 (hb. Gr.), are clearly referable to the above species, hitherto known only from the sandy sea-coast of Texas and Louisiana.

Gnaphalium Altamiranum. Densely lanate-tomentose throughout: stem 1.5 to 2 m. high, much-branched above: leaves sessile, auriculate-clasping, lanceolate, 8 to 16 cm. long, 0.5 to 1.5 cm. broad, acuminate, acute, entire, 3-nerved, broadest near the base: inflorescence a many-headed compound corymbose cyme: heads during anthesis about 6 mm. high, nearly or quite as broad: involucre campanulate, usually 5-seriate; scales of the involucre whitish or pale-stramineous, the outer broadly ovate, obtusish, the inner narrowly oblong, obtuse: flowers numerous: perfect flowers about 10. — MEXICO. State of Morelos: mountains above Cuernavaca, altitude 2460 m., 2 February, 1899, *C. G. Pringle*, no. 8041 (hb. Gr.).

The species here proposed is allied to *Gnaphalium Wrightii*, Gray, but differs in having larger leaves, which are relatively broad at the base, and gradually narrowed to the tip, also by somewhat larger and more numerously flowered heads, and broader outer involucral scales.

Gnaphalium chartaceum. Stem erect, 1 to nearly 2 m. high, freely branching, glandular-hirsute: leaves sessile, round-auricled, half-clasping the stem, lanceolate to somewhat oblong-lanceolate, 3.5 to 8 cm. long, 0.5 to 2 cm. broad, acute to acuminate-acute, entire or slightly undulate-margined, hirsute or glandular-hirsute and somewhat arachnoid in the early stages, especially on the under surface, hirsute on the midrib beneath: inflorescence a terminal compound many-headed corymbose cyme: heads 5 to 6 mm. high: involucre subcampanulate; scales imbricated in 4 series, ovate, obtuse or obtusish, almost pure white or somewhat cream-colored, firm or chartaceous in texture: perfect flowers 15 to 25; pistillate flowers numerous. — MEXICO. State of Jalisco: on hillsides and banks near Guadalajara, 22 November, 1888, *C. G. Pringle*, no. 1827 (hb. Gr.), distributed as "*Gnaphalium decurrens*, Ives, var." State of Puebla: near Tehuacan, 22 December, 1895, *C. G. Pringle*, no. 7033 (hb. Gr.).

G. chartaceum is readily distinguished from *G. decurrens*, Ives, with which species it has hitherto been confused, by the sessile auriculate half-

clasping rather than decurrent leaves, the less lanate-tomentose nature of the under leaf-surface, the more glandular character of stem and foliage, and finally by the chartaceous, essentially white involucral scales.

Gnaphalium crenatum. Stem herbaceous, erect, 3 to 4 dm. high, branching from the base, leafy throughout, terete, white-tomentose with glandular-hirtellous hairs intermixed: leaves sessile, semiamplexicaul and often somewhat decurrent, spatulate to linear-lanceolate, 2.5 to 5 cm. long, 2 to 5 mm. broad, acute or mucronate-acute, more or less arachnoid and densely glandular-hirtellous above, lanate-tomentose beneath; margins revolute and mostly crenate: inflorescence a terminal corymbose cyme: heads about 5 mm. high, disposed in rather dense glomerules: involucre pale-stramineous, 4–5-seriate; scales of the involucre lanceolate, tomentose at the base and greenish along the median line, the outer acuminate, acute, the inner obtusish. — MEXICO. State of Jalisco: near Guadalajara, *C. G. Pringle*, no. 9524 (hb. Gr.).

The affinity of this species is apparently with *G. gracile*, and *G. stramineum*, HBK.

Gnaphalium jaliscense. Lanate-tomentose or densely arachnoid throughout: stem 5 to 7 dm. high, branched from near the base; branches arcuate-ascending, slender, usually simple: leaves narrowly oblanceolate to lance-attenuate, 3 to 8 cm. long, 2 to 8 mm. broad, acute, entire, commonly revolute-margined, short-decurrent: heads about 7 mm. high, disposed in few- to several-headed glomerules at the tip of stem and branches: involucre campanulate at least in the dried state; scales of the involucre white, narrowly ovate to elliptic-oblong, 3 to 5 mm. long, 1 to 2 mm. broad, acute or submucronate: flowers numerous: perfect flowers 20 to 30. — MEXICO. State of Jalisco: Guadalajara, July, 1886, *Dr. Edward Palmer*, no. 256 (hb. Gr.); gravelly soil near Guadalajara, 9 August, 1902, *C. G. Pringle*, no. 8628 (hb. Gr.).

Dr. Palmer's plant here cited was placed by the late Dr. Sereno Watson with *Gnaphalium semiamplexicaule*, DC., but with that species it has little in common. *G. jaliscense* differs from *G. semiamplexicaule* in having decurrent rather than half-clasping leaves, in having larger and more numerously flowered heads; and the scales of the involucre are more pointed and more numerously seriate.

Gnaphalium oaxacanum. Stem and branches densely white lanate-tomentose: basal leaves not seen: stem-leaves sessile, shortly decurrent, lance-attenuate, 2 to 5 cm. long, 2 to 6 mm. broad, entire, revolute-margined, arachnoid-tomentose above, densely white lanate-tomentose beneath, in the later stages becoming more or less recurved:

inflorescence corymbose; heads numerous, small, 3 mm. long, disposed in glomerules: involucral scales about 3-seriate, pale-stramineous, imbricated; the outer scales ovate, obtuse, brownish especially at the base, the inner linear-oblong or slightly oblanceolate, acutish: pistillate flowers about 14: perfect flowers few, usually two. — MEXICO. State of Oaxaca: altitude, 1750 m., — July–August, 1900, *Conzatti & González*, no. 1012 in part (hb. Gr.).

Gnaphalium oblanceolatum. Densely white lanate-tomentose throughout: stem erect, 4 to 5 dm. high, ligneous at the base, simple or branched, leafy: leaves sessile by a half-clasping base, oblanceolate, 2 to 7 cm. long, 0.5 to 1.5 cm. broad, entire, white lanate-tomentose on both surfaces or arachnoid above, also bearing on the upper surface crowded crisp hirsutish hairs: inflorescence terminating the stem and branches in a leafy corymbose panicle: heads crowded: involucre about 5 mm. high; scales imbricated, acute, pale yellow. — MEXICO. State of Oaxaca: Cerro de San Felipe, altitude 1800 m., 21 August, and 1st September, 1897, *Conzatti & González*, nos. 385 and 696 (hb. Gr.).

The species here proposed is described from young flowering specimens. In general appearance it approaches most closely *G. pannosum*, Gray, from which, however, it differs in the more leafy stem and in the oblanceolate leaf-outline.

GNAPHALIUM PURPUREUM, L., var. **macrophyllum.** Stem 6 dm. high, lanate-tomentose: leaves oblanceolate or oblanceolate-spatulate, 0.5 to 1.5 dm. long, 1 to 1.5 cm. broad, obtuse or submucronate-acute, arachnoid-pubescent above in the early stages and later glabrate, densely and permanently white-tomentose beneath: inflorescence racemose-paniculate: involucral scales brownish or with a green base and a rich brown tip. — COSTA RICA. El Copey, altitude 1800 m., February, 1898, *Ad. Tonduz*, no. 11,771 (hb. Gr., and hb. Inst. Phys.-Geog. Cost. Ri.).

It is quite possible that the variety here proposed may prove eventually to represent a distinct species, but in the present confused state of the genus, particularly the subtropical species, it seems to the writer best to regard the above plant as a variety of *G. purpureum*, L., especially as its chief distinguishing characters are the size of the plant, the very large leaves, and the paniculate inflorescence.

Clibadium anceps. Small tree, much-branched: ultimate branches somewhat flattened, decussately 2-edged, minutely strigose-pubescent: leaves opposite, petiolate, ovate, 8 to 12 cm. long, 4 to 6 cm. broad, acuminate, acute, remotely denticulate, more or less revolute-margined, cuneate at the base, hirtellous-pubescent upon both surfaces, glabrate and somewhat

shining above, conspicuously 3–5-nerved: petioles 1.5 to 3 cm. long, and as well as the stem strigose-pubescent: inflorescence a terminal compound corymbose cyme: heads small, about 5 mm. high, disposed in glomerules: involucral bracts ovate, obtuse, appressed-cinereous-pubescent, the outer shorter: ray-flowers mostly 3: mature achenes obovate, about 2 mm. long, glabrous: sterile flowers few, 3 to 5. — COSTA RICA. Forêts de La Palina, altitude 1459 m., 8 September, 1898, *Ad. Tonduz*, no. 12,537 (hb. Gr., and hb. Inst. Phys.-Geog. Cost. Ri.).

CLIBADIUM CARACASANUM, DC. Prodr. vi. 506. To this species the following collections may be referred: VENEZUELA. Tovar, *Fendler*, no. 640 (hb. Gr.). PANAMA. Gatun Station, *Sutton Hayes*, no. 89 (hb. Gr.). COSTA RICA. Cañas Gordas, *H. Pittier*, no. 11,068 (hb. Gr., and hb. Inst. Phys.-Geog. Cost. Ri.).

Clibadium glomeratum. Stem stout, densely soft-tomentose: leaves opposite, long-petiolate, ovate, 1 to 2 dm. long, 0.5 to 1.5 dm. broad, acute, crenately and somewhat unequally dentate, obtuse to subcordate at the base, scabrous-pubescent above, densely soft-pubescent beneath, 3-nerved from a point considerably above the base below which are two or three pairs of less conspicuous lateral nerves: inflorescence terminating the stem and branches in compound corymbose pubescent cymes: heads small, few-flowered, about 5 mm. high, disposed in dense glomerules 5–8 (–10) mm. in diameter: involucral scales oblong or ovate-oblong, 2 to 3 mm. long, glabrous, ciliate: ray-flowers mostly 5, in 1 to 2 series: mature achenes narrowly obovate, about 2 mm. long, glabrous below, villous-pubescent above. — COSTA RICA. Forêts de Luis, altitude 650 m., November, 1897, *Ad. Tonduz*, no. 11,508 (hb. Gr., and hb. Inst. Phys.-Geog. Cost. Ri.).

Clibadium Pittieri. Stem terete, appressed-pubescent: leaves opposite, petiolate, ovate, 1 to 1.5 dm. long, 4 to 8 cm. broad, acuminate, acute, dentate above the middle, entire and narrowed below into the 1 to 6 cm. long petioles, hirsute-pubescent upon both surfaces, 3–5-nerved from just above the base: inflorescence terminating the stem and branches in corymbose clusters: heads about 5 mm. high: involucre of narrowly ovate acute strigose-pubescent bracts: ray-flowers several in about three series: mature achenes obovate, 2 mm. long, glabrous at the base, pubescent at the apex. — COSTA RICA. La Florida voie ferrée Atlantique, altitude 80 m., July, 1897, *H. Pittier*, no. 11,290 (hb. Gr., and hb. Inst. Phys.-Geog. Cost. Ri.). In general habit this species approaches most closely *C. surinamense*, L., but is readily distinguished from it by the conspicuous hirsute pubescence of the upper leaf-surface,

the narrower and less striate involucral scales, and finally by the more numerous fertile flowers. From *C. fragiferum*, Griseb., which also has numerous disk-flowers, *C. Pittieri* differs in the more spreading pubescence of the leaves and in the less conspicuous pales of the receptacle.

Trigonospermum floribundum. Stem 2 to 3 m. high, purplish, striate, at first tawny puberulent later glabrate; branches and the many-headed compound corymbose cyme rather densely stipitate-glandular: leaves opposite, petiolate, broadly ovate, 0.5 to 1.8 dm. long, 2 to 14 cm. broad, acute, unequally cartilaginous-dentate, cuneate at the base into 1 to 5 cm. long petioles, densely subappressed-hispidulous-pubescent above, hirsute-tomentose beneath especially on the midrib and nerves, resiniferous-dotted on the surface, 3-nerved from just above the base: heads many, about 5 mm. high, 12 to 18 mm. in diameter including the rays: outer bracts of the involucre linear or linear-oblong, 4 mm. long, obtuse; inner involucral bracts broadly obovate, closely clasping the achene, appressed-puberulent: rays 5 to 8, yellow, 6 to 8 mm. long, somewhat fan-shaped, unequally dentate: mature achenes obovoid-triangular, smooth and shining. — MEXICO. State of Morelos: cliffs of the Sierra de Tepoxtlan, near Cuernavaca, altitude 2285–3000 m., 4 November, 1901, and 27 November, 1902, *C. G. Pringle*, nos. 9179, 8686 (hb. Gr.).

Polymnia Nelsonii. Stem striate, sparingly hirsute with horizontally spreading jointed hairs: leaves opposite, including the winged clasping petiole 1.5 to 2 dm. long, 1.2 to 1.5 dm. broad, mostly pinnately 5-lobed, thin, dark green above, paler beneath, sparingly pubescent on both surfaces; lobes ovate or rhombic-ovate, acuminate; margins remotely denticulate; petioles broadly winged, 0.8 to 2 cm. in breadth: heads about 3 cm. in diameter, on slender axillary 7 to 10 mm. long peduncles: involucre biseriate; bracts of the involucre oblong-lanceolate, 8 to 10 mm. long, sparingly hirsute, ciliate: ray-flowers 10 to 12; rays yellow. — MEXICO. State of Chiapas: near Santa Christobal, altitude 2150 to 2450 m., 18 September, 1895, *E. W. Nelson*, no. 3221*a* (hb. Gr., & hb. U. S. Nat. Mus.).

In general *P. Nelsonii* most closely resembles *P. oaxacana*, Schz. Bip. especially in foliar characters, but the yellow rays and the thin or membranous leaves and the sparing pubescence of the same readily distinguish it.

Rumfordia polymnioides. Stem purplish, striate, hirsute-pubescent: leaves opposite, subperfoliate, ovate, 0.5 to 1.5 dm. long, 2.5 to 8 cm. broad, acuminate, mucronate-acute, somewhat sinuate-dentate and bearing on the margins subcartilaginous mucronulations, abruptly nar-

rowed below the middle into a winged petiole continuous about the stem, pubescent on both surfaces, 3-nerved, paler and conspicuously reticulate-veined beneath: inflorescence a terminal flat-topped cymose corymb: heads 1 to 1.5 cm. high, 2 to 2.5 cm. in diameter when fully expanded: involucre 2-seriate; outer scales of the involucre foliaceous, ovate, 1 to 1.5 cm. long, two-thirds as broad, acute or slightly acuminate-acute, pubescent with crisp hirsutish hairs; inner scales of the involucre smaller, externally pubescent with glandular and hirsute hairs intermixed, more or less surrounding the glabrous ray-achenes: ray-flowers subbiseriate; rays small, inconspicuous, yellow: disk-flowers numerous; corolla-tube long, slender, externally pubescent, ampliated above into an elongated campanulate limb: achenes smooth and glabrous, slightly obovate-oblique, and more or less angular. — Costa Rica. Plantations de maïs du Copey, April, 1898, *Ad. Tonduz*, no. 11,947 (hb. Gr., & hb. Inst. Phys.-Geog. Cost. Ri.).

In general habit this species closely resembles the genus *Polymnia*, and more particularly *P. edulis*, Wedd., but the involucral characters and the perfect disk-flowers place it readily in the genus *Rumfordia*.

Montanoa macrolepis, Rob. & Greenm. Proc. Am. Acad. xxxii. 44, & xxxiv. 512. *Polymnia Liebmannii*, Schz. Bip. acc. to Klatt in Leopoldina xxiii. 89 (reprint, p. 2). A fragment and a good drawing of the original or type of *Polymnia Liebmannii*, collected by Liebmann at Cumbre de Estepa, Mexico, show very distinctly that the plant has its affinity rather with *Montanoa* than with *Polymnia*, and moreover is identical with the above species *Montanoa macrolepis*, Rob. & Greenm.

Gymnolomia microcephala, Less., Linnæa, v. 153. In the original description of this species it is stated that the heads are discoid, but an examination of the type specimen shows the heads to be distinctly radiate. A comparison of the type of *Gymnolomia patens*, Gray, with the original of *G. microcephala*, Less., also shows that the two plants are absolutely identical. The combination made by Dr. Gray thus becomes a synonym, and the varieties now under *G. patens* should be transferred to *G. microcephala*, Less., hence the synonymy briefly stated is as follows:

Gymnolomia microcephala, Less., l. c. *G. patens*, Gray, Proc. Am. Acad. v. 182; Hemsl. Biol. Cent.-Am. Bot. ii. 163; Rob. & Greenm., Proc. Bost. Soc. Nat. Hist. xxix. 94, incl. synonymy.

Var. **abbreviata**, Rob. & Greemn. *G. patens*, var. *abbreviata*, Rob. & Greenm., Proc. Am. Acad. xxix. 387; Proc. Bost. Soc. Nat. Hist. xxix. 94.

Var. **guatemalensis**, Rob. & Greenm. G. *patens*, var. *guatemalensis*, Rob. & Greenm., Proc. Bost. Soc. Nat. Hist. l. c.

Var. **brachypoda**, Rob. & Greenm. *G. patens*, var. *brachypoda*, Rob. & Greenm., l. c. 95.

Var. **macrophylla**, Rob. & Greenm. *G. patens*, var. *macrophylla*, Rob. &. Greenm. l. c.

Gymnolomia Pittieri. Stem somewhat striate, reddish-brown; the younger branches densely short-hirtellous-pubescent, with few scattered hirsutish hairs intermixed: leaves ovate-lanceolate, 4 to 8 cm. long, 1 to 4 cm. broad, acuminate, acute, crenate-serrate, narrowed below into a subpetiolate base, hirsute-hispid above, paler and densely pubescent beneath, 3-nerved from just above the base: heads, including the rays, 5 to 6 cm. in diameter, terminating the stem and branches on upwardly thickened conspicuously striate short-hirtellous-pubescent peduncles: involucre 3-seriate; outer bracts pubescent, shorter than the oblong somewhat petaloid inner ones: ray-flowers conspicuous; rays narrowly oblong, 2 to 2.5 cm. long, 0.5 cm. broad; ray-achenes triangular, glabrous, neutral: disk-flowers numerous; corolla short-tubular, abruptly expanded into a tubular-campanulate limb, externally pubescent: achenes of the disk-flowers glabrous. *G. platylepis*, Rob. & Greenm., Proc. Bost. Soc. Nat. Hist. xxix. 102, in part. — COSTA RICA. Défrichements le long du Rio Giliri, pres de San José, 5 December, 1890, *H. Pittier*, no. 3136 in part (hb. Gr.); bords du Rio Ceibo à Buenos Aires, altitude 200 m., February, 1891, *H. Pittier*, no. 3735 (hb. Gr.); Ujarras de Buenas Aires, February, 1897, *H. Pittier*, no. 10, 631 (hb. Gr., and hb. Inst. Phys.-Geog. Cost. Ri.).

This species has hitherto been confused with *Gymnolomia platylepis*, Gray, from which, however, it is well distinguished by the smaller leaves and heads, and by the character of the pubescence. The stem and branches of *G. platylepis* are usually pubescent with long spreading pilose or pilose-hirsute hairs, while *G. Pittieri* is densely pubescent with short somewhat hirtellous pubescence.

Zaluzania Pringlei. Shrub: stems covered with a grayish bark; ultimate branches striate, appressed-puberulent, purplish: leaves alternate, petiolate, ovate, 3.5 to 5 cm. long, 2 to 3.5 cm. broad, short-acuminate, obtusish or submucronate-acute, subentire to somewhat crenate-denate, cuneate to subcordate at the base, slightly hispidulous above, puberulent beneath especially on the midrib and nerves; petioles slender, canaliculate, appressed-puberulent, 1 to 1.5 cm. in length: inflorescence a terminal round-topped paniculately corymbose cyme:

heads ovate, 6 to 7 mm. high, discoid: involucre campanulate; bracts of the involucre about 3-seriate, lance-oblong, acutish, appressed-canescent-puberulent: achenes glabrous. — MEXICO. State of Morelos: limestone hills near Jojutla, altitude 925 m., 18 October, 1902, *C. G. Pringle*, no. 8710 (hb. Gr.).

The species here proposed is most nearly related to *Zaluzania discoidea*, Gray, but is readily distinguished by the smaller leaves, more slender petioles; the slight puberulence is not dense and soft-canous-tomentose on the lower leaf-surface.

Aspilia (?) aggregata. Perennial: stem terete, covered with a grayish bark; ultimate branches, upwardly appressed-hispid: leaves opposite, oblong-oblanceolate, 2 to 4 cm. long, 0.5 to 1 cm. broad, acute, entire or inconspicuously denticulate, revolute-margined, narrowed below into a subpetiolate base, tuberculate-hispid above and on the midrib and nerves beneath: heads discoid, about 1 cm. high, 0.5 cm. in diameter, aggregated at the ends of long slender almost naked peduncles: involucres cylindrico-campanulate, 8–10-flowered; bracts of the involucre 4–5-seriate, ovate, short-acuminate and acute to oblong and obtuse or rounded at the apex, more or less strigose-hispid on the outer surface; the outer or lowermost bracts shorter and not unfrequently slightly herbaceous, the inner purplish or somewhat magenta-colored, noticeably ciliate toward the apex with brownish hairs: corollas glabrous; tube slender, gradually ampliated above into a 5-dentate limb: achenes subterete or slightly compressed laterally, constricted above and bearing a lacerate-margined cup-shaped persistent pappus: mature achenes 2 to 3 mm. long, hispidulous under a lens. — MEXICO. State of Jalisco: between Balaños and Guadalajara, 20 September, 1897, *Dr. J. N. Rose*, no. 3029 (hb. Gr., and hb. U. S. Nat. Mus.)

The plant here described has, as far as examined, constantly discoid heads, and in the character of achene and pappus might be equally well referred to either *Wedelia* or *Aspilia*. In habit, however, it seems to approach rather more closely the latter genus, and in specific relationship suggesting the Brazilian species *Aspilia floribunda*, Baker.

Aspilia stenophylla. An herbaceous perennial: stems erect, 5 to 7 dm. high, slender much-branched, appressed-hirtellous-pubescent, in the dried state reddish: leaves lanceolate or linear, 8 to 12 cm. long, 3 to 10 mm. broad, acute, entire or inconspicuously denticulate, slightly revolute-margined, subsessile or narrowed at the base into a short petiole, appressed-hispidulous-pubescent on both surfaces: heads about 1 cm. high, including the rays 1.5 to 1.8 cm. in diameter, terminating the stems and

branches, usually on long slender peduncles: involucre 3-seriate; bracts of the involucre narrowly ovate-lanceolate, about 8 mm. long, acute, appressed-pubescent; the outer sometimes a little shorter; the innermost more oblong and thinner: ray-flowers neutral, few, 5 to 8, yellow: disk-flowers 20 to 30; pales of the receptacle somewhat keeled, and purplish along the median line: achenes pubescent, maculate with purple-magenta patches. — MEXICO. State of Chihuahua: in the Sierra Madre, near Seven Star Mine, altitude 2450 m., 28 August, 1899, *Townsend & Barber*, no. 380 (hb. Gr.). This species is nearly allied to *Aspilia angustifolia*, Gray, but it differs in the longer, less pubescent leaves, and in the more acuminate outer bracts of the involucre.

Viguiera brevifolia. A much-branched shrub, 1 m. or less in height: stems terete, covered with a grayish bark; ultimate branches canous-strigose: leaves opposite below, alternate above, lanceolate-triangular to somewhat ovate, acute to obtuse, entire or subcrenate and revolute-margined, mostly abruptly narrowed at the base into a short petiole, densely appressed-canous-pubescent on both surfaces, especially beneath and on the short petioles: heads 1 cm. or less high, terminating the stem and branches, on long slender peduncles, radiate, including the rays about 1.5 cm. in diameter: involucre campanulate; bracts of the involucre 2–3-seriate, lanceolate to ovate, acute, about 4 mm. long, externally canous-appressed-pubescent: ray-flowers 8 to 10; rays oblong, 6 to 7 mm. long, yellow: disk-flowers numerous, 50 to 60: pappus of two slender aristæ, equalling or slightly exceeding the intermediate lacerated scales: mature achenes 3 mm. long, sparingly pubescent. — MEXICO. State of Durango: Mapimi, 21 to 23 October, 1898, *Dr. Edward Palmer*, no. 527 (hb. Gr., and hb. U. S. Nat. Mus.).

In general habit this species most resembles the Lower Californian *Viguiera microphylla*, Vasey & Rose, but is readily distinguished from it by the character of the inflorescence.

VIGUIERA CORDIFOLIA, Gray, var. **latisquama.** Habit, cauline, foliar and inflorescence characters of the type of the species: involucral bracts imbricated, 3-seriate, linear-oblong, 2 to 3.5 mm. broad, somewhat rounded or very abruptly narrowed at the tip and terminated by a mucro; the outer bracts shorter than the inner ones: floral and achenial characters of the species proper. — MEXICO. State of Durango: vicinity of the City of Durango, September, 1896, *Dr. Edward Palmer*, no. 667, and no. 747 (hb. Gr.).

A very distinct variety, and possibly worthy of specific rank.

Viguiera eriophora. Stem somewhat ligneous, covered with a brownish bark; branches and branchlets reddish-brown, striate, more or less compressed, tomentulose, lanate at the nodes as well as on the petioles with long woolly hairs: leaves mostly opposite, ovate to ovate-lanceolate, including the petiole 5 to 16.5 cm. long, 1 to 8 cm. broad, acuminate, acute, coarsely and irregularly dentate, abruptly contracted at the base and more or less decurrent on the petiole, tuberculate-hispid above, hirsute-pubescent beneath, 3-nerved, rather prominently reticulate-veined on the under surface: inflorescence a terminal many-headed subcorymbose cyme; peduncles 0.5 to 3 cm. in length, hirsute-pubescent: heads large, including the bright yellow rays fully 4 cm. in diameter, 1 to 1.5 cm. high; involucral scales 3–4-seriate, lance-oblong, short-acuminate, acute, tomentulose to nearly or quite glabrous, conspicuously ciliate, the outer scales somewhat shorter: ray-flowers 6 to 8: disk-flowers numerous: achenes densely appressed-sericeous-villous. — MEXICO. State of Oaxaca: hills of Telixtlahuaca, altitude 2000 m., 18 October, 1895, *Rev. Lucius C. Smith*, no. 971 (hb. Gr.); without locality, 21 October, 1899, *E. W. D. Holway*, no. 3689 (hb. Gr.), July–August, 1900, *Conzatti & González*, no. 987 (hb. Gr.).

In general appearance *Virguiera eriophora* resembles certain species of *Helianthi*, but in the technical characters of the head it is distinctly a *Viguiera*.

Viguiera Goldmanii. Stem erect, strict, striate, brownish, glabrous or slightly puberulent above: leaves opposite, subsessile, oblong-lanceolate, 5 to 8 cm. long, 1 to 2.5 cm. broad, acuminate, acute, entire or inconspicuously denticulate, subcordate at the base, sparingly hispidulous on both surfaces, distinctly 3-nerved: inflorescence a loose di-trichotomously branched corymbose cyme: heads 10 to 12 mm. high, radiate, including the rays about 2.5 cm. in diameter: involucre subcylindrical, slightly shorter than the flowers of the disk: bracts of the involucre 4–5-seriate, ovate-oblong to typically oblong, obtuse to rounded at the apex, yellowish green, glabrous and striate, short-ciliate: ray-flowers commonly 8; rays oblong, about 1 cm. long: pappus of two paleo-aristate awns, much longer than the intermediate lacerated scales: achenes densely appressed-sericeous-pubescent. — MEXICO. State of Durango: Chalco, altitude about 1000 m., 7 March, 1899, *E. A. Goldman*, no. 359 (hb. Gr.).

A species resembling *Viguiera montana*, Rose, but readily distinguished by the more rounded and less ciliated involucral scales, and by the less attenuated foliage.

Viguiera hypargyrea. Stem terete, substriate, upwardly appressed-pubescent: leaves alternate, sessile or subsessile, lanceolate, acuminate, acute, 2.5 to 6 cm. long, 0.5 to 1.5 cm. broad, entire, rounded or obtuse at the base, indistinctly 3-nerved, appressed-hirsute above, densely soft-sericeous beneath: heads solitary, terminating the stems, 1.5 to 2 cm. high, excluding the rays 2 to nearly 3 cm. broad at least in the later stages: involucre campanulate, 2–3-seriate; bracts of involucre imbricated, lance-oblong, acute, externally sericeous-pubescent, the outer bracts a little shorter than the inner: ray-flowers neutral; rays oblong, 12 mm. long, 4 to 5 mm. broad: disk-flowers numerous: corollas 6 mm. long, abruptly and conspicuously ampliated above the short pubescent tube: mature achenes about 5 mm. long, densely appressed-sericeous-pubescent; pappus of two subpaleaceous awns with intermediate erose scales, persistent. — MEXICO. State of Durango: City of Durango and vicinity, April to November, 1896, *Dr. Edward Palmer*, no. 816 (hb. Gr., and hb. U. S. Nat. Mus.).

Viguiera microcephala. Stems herbaceous, 1 to 2 m. high, slender, erect, much-branched, striate, reddish-brown, strigose-pubescent: leaves alternate, at least the upper ones, petiolate, ovate, 3 to 6 cm. long, 1 to 3.5 cm. broad, acuminate, acute, somewhat sinuate-dentate with more or less spreading teeth, cuneate to subcordate at the base, appressed-pubescent on both surfaces; petioles 12 mm. or less in length, canous-strigose: heads small, 6 to 7 mm. high, radiate, including the rays 1 cm. or less broad, disposed in few-headed cymes at the ends of the slender branchlets: involucre 1–2-seriate; bracts lanceolate or narrowly ovate-acuminate, 4 to 5 mm. long, appressed-pubescent: ray-flowers 5, neutral; rays yellow, broadly ovate or subrotund, 3 to 4 mm. long, nearly or quite as broad, 4-nerved: disk-flowers 12 to 14: pappus of 2 aristæ with 2 intermediate laciniate scales on either side of the achene: achenes thickish, sub-4-angled, 2 mm. long, at first appressed-silky-villous, later glabrous or nearly so. — MEXICO. State of Morelos: limestone hills near Yantepec, altitude 1385 m., 7 November, 1902, *C. G. Pringle*, no. 8717 (hb. Gr.).

In general aspect *V. microcephala* suggests *V. tenuis*, Gray, and *V. helianthoides*, HBK., but the heads are more numerous and smaller than in either of these species.

Viguiera Rosei. Stems densely white-lanate-tomentose: leaves alternate, sessile, half clasping the stem by a broad auriculate base, oblong-lanceolate, attenuate, 1 to 2.2 dm. or more long, 1.5 to 6 cm. broad, acute, entire to remotely denticulate, conspicuously reticulate-veined and

appressed-hirsute-pubescent above, rather densely soft-tomentose beneath: heads large, about 2 cm. high, 4 to 5 cm. broad, terminating the stem and branches on 2 to 6 cm. long slightly thickened upwardly densely white-lanate peduncles: involucre campanulate; bracts of the involucre 2–3-seriate, lance-attenuate, 3 cm. or less in length, about 5 cm. in breadth, more or less foliaceous and recurved at the tip, sericeous-pubescent: ray-flowers about 16, neutral; rays 12 to 15 mm. long, 5 mm. broad: disk-flowers numerous: pappus of 1 or 2 unequal subpaleaceous deciduous awns and shorter deeply lacerated intermediate persistent scales: corollas apparently roseate or somewhat pink in color: mature achenes about 6 mm. long, densely appressed-pubescent. — MEXICO. State of Zacatecas: near Plateado on the road from Colatlan, 31 August, 1897, *Dr. J. N. Rose*, no. 2710 (hb. Gr., and hb. U. S. Nat. Mus.).

Notwithstanding the superficial resemblance this plant bears to the genus *Tithonia*, on account of the robust habit and large heads, the real affinity seems to be with the genus *Viguiera*, and is closely related to *V. decurrens*, Gray, and *V. excelsa*, Benth. & Hook. The writer takes pleasure in dedicating the species to its collector, Dr. J. N. Rose of the U. S. National Museum, Washington, D. C.

Altamirania, n. gen. of *Compositæ* (*Verbesineæ*). Heads heterogamous, radiate. Involucre campanulate; bracts 2–3-seriate. Receptacle convex or conical; pales of the receptacle conduplicate, keeled. Ray-flowers uniseriate, fertile; achenes triangular. Corollas of the disk-flowers regular; tube short, ampliated above into an elongated-cylindrical 5-toothed limb. Anthers minutely dentate at the base, appendaged at the apex. Style-branches obtuse. Achenes of the disk-flowers laterally compressed-4-angled. Pappus of 2 to 3 paleaceous awns, with 1 to 3 lacerated scales between, persistent. Erect suffruticose (?) plants with opposite leaves and terminal cymose inflorescence.

A. pachyphylla. An erect suffruticose (?) plant, glabrous throughout, or slightly puberulent on the peduncles: stem striate, purplish: leaves lanceolate or somewhat oblanceolate, 5 to 12 cm. long, 1.5 to 3.5 cm. broad, acute or acuminate-acute, dentate, narrowed below to a subpetiolate base, smooth on both surfaces, dark- or somewhat olive-green above, paler beneath: heads 1 cm. or less high, including the rays 3 to 4 cm. in diameter, disposed in terminal compound corymbose cymes: involucral scales linear, obtusish, slightly thickened and more or less spreading: ray-flowers 8 to 10; rays narrowly oblong about 1.5 cm. long, 3 mm. broad: disk-flowers numerous; the paleaceous awns about one-half as long as the corolla; achenes tapering toward the base, cilio-

late on the margins, glabrous on the surface, at maturity 3 to 4 mm. in length. ? *Aspilia pachyphylla*, Klatt, Leopoldina, xxiii. 143 (reprint, p. 4). — MEXICO. State of Oaxaca: near Totontepec, altitude 1125 to 1625 m., 15 to 28 July, 1894, *E. W. Nelson*, no 829 (hb. Gr., and hb. U. S. Nat. Mus.).

But for the fertile ray-flowers and the diverse habit the plant here described might be referred to the genus *Viguiera*. From *Encelia* it differs in the character of the ray-flowers, and in the distinctly 4-angled achenes of the disk-flowers. From *Verbesina* it differs in the achenial characters, namely, in being 4-angled and not distinctly winged, and also in the nature of the pappus. Although bearing a certain affinity with the three genera here mentioned, it differs in the important characters enumerated, hence it seems best to give it generic rank with a position in the natural sequence near *Viguiera*.

The genus is dedicated to Dr. Fernando Altamirano, Professor at the School of Medicine, and Director of the National Medical Institute, City of Mexico.

Helianthus oaxacanus. Stems striate, terete and glabrous below, subangled and minutely appressed-puberulent above, especially in the inflorescence: leaves alternate (at least the upper ones), petiolate, broadly ovate, acute, 4 to 14 cm. long, 2 to 8 cm. broad, dentate to subentire, often revolute-margined, rounded or abruptly narrowed at the base into a 1 to 3.5 cm. long petiole, glabrous or essentially so on both surfaces, 3-nerved: inflorescence a terminal comparatively few-headed leafy paniculate cyme: heads large, 1.5 to 2 cm. high, including the rays 4 to 5 cm. in diameter: involucre campanulate; bracts of the involucre 2–3-seriate, imbricated, lanceolate, acuminate, acute; the outer bracts shorter than the inner ones; ray-flowers 12 to 15, neutral; rays yellow, oblong, 1.5 cm. or more long, 6 to 7 mm. broad: disk-flowers numerous: pappus of two rather large unequal paleaceous awns with smaller intermediate persistent erose scales: achenes appressed-sericeous pubescent. — MEXICO. Between Huajuapam, State of Oaxaca, and Retlatzingo, State of Puebla, altitude 1450 to 2000 m., 19 November, 1894, *E. W. Nelson*, no. 1985 (hb. Gr., and hb. U. S. Nat. Mus.).

HELIANTHUS PETIOLARIS, Nutt. Jour. Acad. Phil. ii. 115. Specimens referable to this species were collected by *Townsend & Barber* in the Sierra Madre near Rio de Aroz, State of Chihuahua, Mexico, altitude 2300 m., 3 September, 1899, no. 403 (hb. Gr.). The specimens at hand agree well with the more northern representatives of the species, except for the somewhat narrower involucral bracts in which character they approach the variety *canescens*.

HELIANTHUS PETIOLARIS, Nutt., var. CANESCENS, Gray, Pl. Wright. i. 108; Syn. Fl. i. pt. 2, 272. Mr. E. W. Nelson collected near Casas Grandes, State of Chihuahua, Mexico, 30 August, 1899, specimens under no. 6328 (hb. Gr., and hb. U. S. Nat. Mus.), which, except for a slightly more pronounced dentation of the leaves, accord well with the type of the above variety.

The locality not only extends considerably the geographical range of the variety *canescens*, but adds another *Helianthus* not hitherto recorded from Mexico.

Perymenium macrocephalum. Stout herbaceous perennial, pubescent throughout with more or less spreading stiff hairs; stem and branches mottled with reddish-brown patches: leaves opposite, petiolate, ovate, 5 to 10 cm. long, 3 to 7 cm. broad, acuminate, acute, rather remotely and shallowly dentate, rounded or cuneate at the base, hispid above, paler and hirsute-hispid on the conspicuously reticulated veins beneath; petioles 0.5 to 2.5 cm. long, narrowly winged by a continuous prolongation of the leaf-blade: heads few, on long peduncles 1 to 10 cm. in length; scales of the involucre 3–4-seriate, ovate to oblong, obtuse, externally appressed-pubescent, ciliate, the outer shorter: ray-flowers about 13, fertile; rays yellow: disk-flowers numerous: mature achenes 4 to 5 mm. long, somewhat roughened on either surface: pales of the receptacle conspicuous, especially in the later stages. — MEXICO. State of Guerrero: limestone mountains above Iguala, altitude 1230 m., 27 September, 1900, *C. G. Pringle*, no. 8416 (hb. Gr.). This species suggests in some respects *Montanoa macrolepis*, Rob. & Greenm., but in the technical characters it is quite distinct.

PERYMENIUM RUDE, Rob. & Greenm., Proc. Am. Acad. xxxiv. 526. Specimens collected near Tequila, State of Jalisco, Mexico, 5–6 July, 1899, by *Dr. J. N. Rose & Mr. Walter Hough*, no. 4749 (hb. Gr., and hb. U. S. Nat. Mus.), agree in all essential details with the original specimen, and with the first published description of this species. In the above cited number, however, the leaves are often 4 cm. in length, and 3 cm. in breadth, thus somewhat larger than was indicated in the original description.

SPILANTHES DISCIFORMIS, Rob., var. **phaneractis.** Stems ascending, 2.5 to 8 dm. long, rooting at the lower nodes: leaves narrowly lanceolate, 8 cm. or less in length, 8 mm. in breadth: peduncles slender, 7 to 13 cm. long: rays conspicuous, sulphur-yellow, 5 to 6 mm. long, 2 to 3 mm. broad. — MEXICO. State of Michoacan: swamps, Zamora, altitude 1540 m., 1901, and 24 July, 1902, *C. G. Pringle*, nos. 9539, 8637 (hb. Gr.).

Spilanthes macrophylla. Stems erect or nearly so, 2.5 to 6 dm. high, striate, sparingly pubescent with spreading hirsute hairs, glabrate: leaves opposite, petiolate, ovate-lanceolate, 5 to 15 cm. long including the petiole, 1.5 to 4 cm. wide, acuminate, acute, entire to rather conspicuously sinuate-dentate, narrowed at the base into a slender ciliate petiole, glabrous on both surfaces or with a few scattered hirsute hairs on the midrib and veins beneath, membranous: heads radiate, 8 to 10 mm. high, on long axillary and terminal somewhat sulcate sparingly subappressed-hirsute 2 to 15 cm. long peduncles: involucre, 2-seriate; scales of the involucre linear-lanceolate, 4 to 7 mm. long, acute, externally hirsute-pubescent: ray-flowers about 10; rays yellow: disk-flowers numerous: achenes about 2 mm. long, bearing two slender pappus-awns, ciliate on the margins, sparingly appressed-pubescent on both surfaces. — COSTA RICA. Bord du Rio del Volcan, 2 February, 1891, *H. Pittier*, no. 3717 (hb. Gr.); Salutre de San Murios, altitude 1355 m., *Ad. Tonduz*, no. 7831 (hb. Gr.); Alto del Sacatæ, Cerro de Buena Vista, January, 1897, *H. Pittier*, no. 10,546 (hb. Gr., and hb. Inst. Phys.-Geog. Cost. Ri.). *Pittier's* no. 3717 and *Tonduz's* no. 7831, both of the Pittier and Durand, "*Plantæ costaricensis exiccatæ*," were referred by Klatt to *Spilanthes Mutisii*, HBK., a South American species from which, however, the Costa Rican plant differs materially in the character of the involucral scales.

SPILANTHES URENS, Jacq. Am. Stirp. 214, t. 126, f. 1; HBK. Nov. Gen. & Sp. iv. 211; DC. Prodr. v. 625. Specimens collected at Altata, State of Sinaloa, Mexico, by *Dr. J. N. Rose*, 15 June, 1897, without number (hb. Gr., and hb. U. S. Nat. Mus.), accord in all important details with the above maritime species, which has not been recorded hitherto from Mexico.

Encelia adenophora. Stout herb, 1 to 2.5 m. high, pubescent throughout with stipitate glands intermixed with horizontally spreading hirsute hairs: lower leaves opposite, petiolate, ovate to deltoid-ovate, 5 to 12 cm. long, 3 to 10 cm. broad, more or less acuminate, acute, rather coarsely and somewhat unequally dentate, 3-nerved from or just above the base; petioles 6 cm. or less in length, naked; upper leaves gradually smaller, shorter-petioled, becoming lanceolate-oblong, more acuminate and remotely dentate to subentire: inflorescence a subcorymbose, or paniculate cyme; peduncles 0.5 to 7 cm. long: heads 12 to 17 mm. high, 1.5 to 2.5 cm. in diameter: involucre campanulate; bracts of the involucre lance-attenuate, 10 to 12 mm. long, subequal or the outer bracts slightly exceeding the inner: ray-flowers about 12; rays pale

yellow, 8 mm. long, one-half as broad, longer than the slender sterile achene: disk-flowers numerous, about 50; corollas pale yellow or sometimes slightly tinged with purple: mature achenes 5 mm. long, 3 mm. broad. — MEXICO. State of Jalisco: fields and copses, Tequila, September–October, 1893, *C. G. Pringle*, no. 4602 (hb. Gr.). State of Guerrero: between Tlapa and Tlaliscatilla, altitude 1200 to 1400 m., 5 December, 1894, *E. W. Nelson*, no. 2045 (hb. Gr., and hb. U. S. Nat. Mus.). State of Oaxaca: hills of Soledad de Etla, altitude 1850 m., 19 November, 1895, *L. C. Smith*, no. 894 (hb. Gr.).

This species has hitherto been confused with *Encelia mexicana*, Mart., and Mr. Pringle's specimen above cited was distributed as "*Encelia mexicana*, Mart., var." From that species, however, *E. adenophora* is amply distinct, being readily separated by the pale yellow color of the entire plant, the larger, more numerously flowered heads, the attenuated involucral scales, and finally by the copious stipitate-glandular hairs of stem, leaves and inflorescence.

Encelia angustifolia. An herbaceous perennial: stem simple, erect from a ligneous base, 3 to 4 dm. high, glabrous, striate, more or less purplish: leaves alternate or scattered, linear or linear-lanceolate, 1.5 to 8 cm. long, 1.5 to 3 mm. broad, acute or acutish, remotely and inconspicuously serrulate, appressed-hirtellous above, glabrous beneath, 3-nerved; nerves rather prominent especially on the lower leaf-surface: heads radiate, about 1 cm. high, excluding the rays about 6 mm. in diameter, terminating the stems on slender peduncles: involucre 1–2-seriate; bracts of the involucre lance-linear, subequal, shorter than the flowers of the disk: ray-flowers about 5; rays narrowly oblong, 10 to 12 mm. long, yellow: disk-flowers comparatively few: achenes strongly compressed laterally, ciliate-margined. — MEXICO. Territory of Tepic: in the Sierra Madre, 13 August, 1897, *Dr. J. N. Rose*, no. 3453 (hb. Gr., and hb. U. S. Nat. Mus.).

A very characteristic species, which on account of the narrow attenuated leaves and the few heads, is easily distinguished from all the described species of the genus.

Encelia collodes. Suffruticose: stem covered with a brownish bark: branches striate, or striate-angled puberulent or essentially glabrous: leaves alternate, petiolate, lanceolate or oblong-lanceolate, 5 to 12 cm. long, 1.5 to 5 cm. broad, acuminate, acute, entire, narrowed at the base into a 0.5 to 1.5 cm. long petiole, glabrous above, puberulent on the prominent midrib and nerves beneath, firm in texture: inflorescence a terminal few-headed subcorymbose cyme: heads rather large, pedun-

culate, 1.5 to 2 cm. high, 5 cm. in diameter: involucre about 4-seriate; bracts of the involucre lance-oblong, acute to obtuse, thickish, striate, externally somewhat tawny pubescent and as well as the corollas and pales of the receptacle more or less glutinous: ray-flowers 12 to 16, conspicuous: disk-flowers numerous: achenes strongly compressed laterally, sparingly hirsute-pubescent on both surfaces, long-ciliate on the margins. — MEXICO. State of Chiapas: along road from Ocuilapa to Tuxtla, altitude 600 to 1000 m., 29 August, 1895, *E. W. Nelson*, no. 307, (hb. Gr., and hb. U. S. Nat. Mus.).

The affinity of *E. collodes* seems to be with *E. glutinosa*, Rob. & Greenm., and *E. Pringlei*, Fernald. From the former it is distinguished by the larger and fewer heads, longer involucral scales, and by the absence of the long sericeous hairs on the young shoots; from the latter it is readily separated by the foliar characters.

Encelia Conzattii. Perennial: stem covered with a grayish bark; branches and branchlets purplish, slightly compressed particularly at the nodes, striate, closely and minutely appressed-strigulose: leaves opposite, short-petiolate, lanceolate, 5 to 10 cm. long, 1 to 2.5 cm. broad, acuminate, acute, remotely denticulate, narrowed below into a crisp-undulate base, dark green and puberulent above, pale and closely canous-pubescent beneath: inflorescence a terminal leafy subcorymbose or paniculate cyme: heads including the sulphur-yellow rays 2 to 2.5 cm. in diameter, 1 cm. or less high, on densely canous-pubescent peduncles 0.5 to 3 cm. in length; involucral scales 2–3-seriate, the outer scales subfoliaceous; ray-flowers usually 6: disk-flowers about 35: achenes sparingly pubescent on both surfaces, conspicuously ciliate on the margins. — MEXICO. State of Oaxaca: altitude 1750 m., July–August, 1900, *Conzatti & González*, no. 1007 (hb. Gr.).

Encelia pilosa. Annual: stem erect, purplish or stramineous, hispidulous-pubescent with long pilose hairs intermixed, somewhat stipitate-glandular especially in the inflorescence: lower leaves opposite, petiolate, broadly ovate, 3 to 14 cm. long, fully two-thirds as broad, acute, subentire to crenate-dentate, hirsute-hispid above, hirtellous-pubescent beneath, 3-nerved from the base; petioles neither winged nor auricled, usually bearing long pilose hairs; upper leaves gradually reduced and shorter-petioled: inflorescence a many-headed nearly naked subcorymbose or paniculate cyme: heads radiate, 10 to 12 mm. high: scales of the involucre imbricated in 3 to 4 series, more or less purplish colored, externally pubescent, the outer scales ovate, acute, shorter than the inner lanceolate ones: ray-flowers, commonly 5; rays yellow, elliptic-oblong,

excluding the short tube 6 mm. long, 4 mm. broad; ray-achenes slender, 6 mm. long: disk-flowers 20 to 25; corolla yellow or purplish: mature achenes 4 to 5 mm. long, appressed-pubescent on both surfaces, ciliate. — MEXICO. State of Oaxaca: 17 October, 1899, *E. W. D. Holway*, no. 3747 (hb. Gr.), and 25 October, 1899, no. 3740 (hb. Gr.); altitude 1750 m., July–August, 1900, *Conzatti & González*, no. 1002 (hb. Gr.); Ocotlan, December, 1901, *Conzatti & González*, no. 1263 (hb. Gr.); between Coixtlahuaca and Tamazulapam, altitude 2000 to 2500 m., 12 November, 1894, *E. W. Nelson*, no. 1937 (hb. Gr., and hb. U. S. Nat. Mus.); Valley of Etla, altitude 1700 m., 23 October, 1895, *L. C. Smith*, no. 854 (hb. Gr.).

Encelia squarrosa. Perennial, 4 to 6 m. high: stem slightly furrowed, tawny pubescent: leaves opposite, petiolate, ovate, 8 to 15 cm. long, 5 to 8 cm. broad, acuminate, dentate, cordate, dark green and hirsute-hispid above, paler and hirsute-tomentose beneath, 3–5-nerved from or just above the base; petioles 2 to 3 cm. in length: inflorescence a terminal corymbose cyme: heads large, about 1.5. cm. high, including the rays 5 to 6 cm. broad: involucre 3–4-seriate; scales of the involucre lanceolate, shorter than the flowers of the disk, acute, strongly squarrose, thickened at the base, ciliate, pubescent on the outer surface: ray-flowers neutral, about 20, yellow; pappus of slightly unequal scales, more or less united, shorter than the triangular sterile achenes; rays oblong, 1.5 cm. long, 6 mm. broad: disk-flowers numerous; pappus of two paleaceous awns with two or three intermediate scales, persistent: achenes strongly compressed, pubescent on both surfaces, ciliate. — MEXICO. State of Guerrero: mountains above Iguala, altitude 1230 m., 11 October 1900, *C. G. Pringle*, no. 8390 (hb. Gr.).

HELIANTHELLA QUINQUENERVIS, var. ARIZONICA, Gray, Syn. Fl. i. pt. 2, 284. Specimens collected by E. W. Nelson, on the Sierra Madre of S. W. Chihuahua, Mexico, about 95 km. south of Guadalupe and Calvo, altitude 2000 to 2500 m., August, 1898, no. 4808 (hb. Gr., and hb. U. S. Nat. Mus.), are clearly to be referred to the variety *arizonica* of the above species. This variety does not seem to have been hitherto reported from Mexico.

Verbesina madrensis. An herbaceous perennial: stems 4 to 6 dm. high, winged below, naked or nearly so above: lower leaves opposite, the upper alternate, elliptic-oblong to oblong-lanceolate, 3 to 10 cm. long, 1 to 4 cm. broad, obtuse, crenate-dentate, decurrent on the stem, hirsute-hispid on both surfaces especially above, prominently reticulate-nerved: heads one to few, terminating the stem and branches on

long naked or subnaked, hirsute-hispid peduncles, 1 to 1.5 cm. high, including the rays 3 to 4 cm. in diameter: involucre 2–3-seriate; bracts of the involucre subequal, linear-oblong, obtuse or obtusish, a little shorter than the flowers of the disk, externally hirsute-pubescent: ray-flowers about 12, neutral; rays conspicuous, yellow, 1 to 1.5 cm. long, 4 to 6 mm. broad: disk-flowers numerous; pappus reduced to two inconspicuous knobs: achenes glabrous. — MEXICO. Territory of Tepic: in the Sierra Madre, between Santa Gertrudés and Santa Teresa, 8 August, 1897, *Dr. J. N. Rose*, no. 3378 (hb. Gr. & hb. U. S. Nat. Mus.).

A species belonging to the § *Pterophyton*, and most nearly related to *V. capitaneja*, Nees.

Eryngiophyllum, n. gen. of *Compositæ* (*Coreopsideæ*). Heads heterogamous, radiate. Involucre campanulate; bracts 2–3-seriate, free or very slightly united at the base. Receptacle flat or somewhat convex, paleaceous; pales thin, membranous. Ray-flowers uniseriate, fertile; achenes subtriangular. Disk-flowers regular; corolla-tube short, gradually ampliate above into an elongated-campanulate 5-toothed limb; achenes densely compressed. Anthers obtuse at the base, appendaged at the apex. Style-branches hirtellous-elongate-appendaged; stigmatic-lines short. Pappus obsolete. Herbaceous perennials with radical leaves and cymose inflorescence.

E. Rosei. Leaves densely rosulate from the crown of a deep perennial root, often somewhat falcate, linear-lanceolate, 3 to 12 cm. long, 5 to 8 mm. wide, undivided or bearing one or more arcuate-ascending lateral divisions, mucronate-acute, entire, somewhat cartilaginous-margined, ciliate, glabrous on both surfaces, more or less areolate: inflorescence axillary scapoid compound bracteate cymes, exceeding the leaves: heads about 1 cm. high, 2.5 cm. broad, on glabrous or slightly hirtellous peduncles 2 to 8 cm. ong: involucre 2–3-seriate; bracts of the involucre subequal; those of the two outer series subherbaceous, lanceolate, acute, ciliate, much thickened and gibbous at the base: ray-flowers about 20, rays yellow, conspicuously nerved: disk-flowers numerous: pappus quite obsolete or represented by very short protuberances: apical appendages of the anthers short, broad, obtuse: achenes glabrous. — MEXICO. State of Sinaloa; between Rosario and Calomas, 12 July, 1897, *Dr. J. N. Rose*, no. 1618 (hb. Gr., and hb. U. S. Nat. Mus.).

The natural affinity of the genus here proposed is apparently with *Isostigma* and *Chrysanthellum*. In the technical characters of the head, particularly the style-branches, it approaches more closely the latter genus.

Chrysanthellum mexicanum. Annual: stem simple or much-branched, erect or ascending, 1 to 3 dm. high, glabrous or sparingly hirtellous, apparently somewhat glaucous, often purplish at the base: leaves petiolate, tripinnately parted, glabrous on both surfaces, prominently veined; divisions narrow, apiculate-acute: inflorescence a subcorymbose cyme: heads small, 3 to 4 mm. high: involucre subcampanulate, glabrous; scales of the involucre ovate-oblong, acute: outer achenes subterete, the inner strongly ob-compressed, narrowly cartilaginous-margined and conspicuously ciliate. — MEXICO. State of Jalisco: banks of ravines near Guadalajara, 10 September, 1890, *C. G. Pringle*, no. 3259 (hb. Gr.), distributed as "*Chrysanthellum procumbens*, Rich."; Tequila, August, 1886, *Dr. Edward Palmer*, no. 364 (hb. Gr.). State of Chiapas: tableland about Ocuilapa, altitude 1000 to 1200 m., 21 August, 1895, *E. W. Nelson*, no. 3065 (hb. Gr., and hb. U. S. Nat. Mus.). State of Vera Cruz: Orizaba, *Botteri*, without number (hb. Gr.). State of San Luis Potosi, altitude 2000 to 2450 m., *C. C. Parry & Dr. Edward Palmer*, without number, coll. of 1878 (hb. Gr.).

The Mexican and Central American representatives of this genus hitherto have been referred to *C. procumbens*, Rich., which species, as far as the material at hand shows, is confined to the West Indies, Venezuela and Guatemala. *C. mexicanum* is readily distinguished from *C. procumbens* by its more erect, stricter habit, and by the uniformly tripinnatisect leaves. In habit and in foliar characters *C. mexicanum* bears a close resemblance to *C. Indicum*, DC. from which it differs in having smaller, narrowly cartilaginous-margined and conspicuously ciliated achenes.

Bidens bicolor. Stem stramineous, striate, hirsute-pubescent to essentially glabrous, rather freely branched above: leaves pinnately 3–5-parted; divisions ovate to ovate-lanceolate, 1.5 to 5 cm. long, 0.5 to 2 cm. broad, acute to acuminate-acute, dentate, sparingly pubescent to quite glabrous, paler beneath: inflorescence a loose subcorymbose cyme: heads, including the rays, 2.5 to 6 cm. in diameter: involucre biseriate, more or less hirsute; outer involucral scales linear-oblong, subfoliaceous, usually spreading: ray-flowers 5 or 6, neutral; rays oblong, 1.5 to nearly 3 cm. long, dark-nerved in the earlier stages, conspicuously purple-maculate at the base: disk-flowers numerous: pappus retrorsely few-barbed: mature achenes not seen. — MEXICO. State of Oaxaca: altitude 1750 m., July–August, 1900, *C. Conzatti & V. González*, nos. 1008, 1009 (hb. Gr.). Apparently most nearly related to *Bidens grandiflora*, Balb.

BIDENS TERETICAULIS, DC., var. **sordida.** Leaves mostly simple and undivided, rarely deeply 3-parted, sordid-pubescent upon both surfaces more densely so beneath: outer scales of the involucre rusty tomentose. — COSTA RICA. Thal des rio Segando, *Hoffmann*, no. 383 (hb. Gr.); forêts de la Mala Via au Copey, April, 1898, *Ad. Tonduz*, no. 12,284 (hb. Gr., and hb. Inst. Phys.-Geog. Cost. Ri.).

Arnicastrum, n. gen. of *Compositæ* (*Helenoideæ*). Heads heterogamous, many-flowered. Involucre campanulate; bracts 2–3-seriate, the outer herbaceous. Receptacle convex, naked. Ray-flowers yellow, ligulate, 2–3-dentate, fertile, epappose; mature achenes numerously ribbed. Disk-flowers with a rather slender tube dilated above into an equally 5-toothed limb: pappus of numerous somewhat unequal barbellate bristles: achenes slightly compressed, 4-angled, many-ribbed. Herbaceous perennials with opposite leaves and rather large heads.

A. glandulosum. Stems erect, 3 to 5 dm. high, mostly branched from the base, striate, hispidulous-pubescent, and above especially on the usually long peduncles bearing long-stipitate purplish glandular hairs: leaves sessile, subamplexicaul, 3–5-nerved from the base, narrowly lanceolate, 2 to 8 cm. long, 3 to 15 mm. broad, entire or sparingly denticulate, hispidulous-pubescent on both surfaces: heads about 1 cm. high, including the rays 3 to 4.5 cm. in diameter; outer involucral scales oblong or oblong-ovate, 10 to 12 mm. long, 5 to 8 mm. broad, obtuse, entire, hirtellous-pubescent on the outer surface; the inner scales mostly longer, sometimes acuminate, membranous: ray-flowers about 10; tube 2 to 3 mm. long, externally pubescent; rays elliptic-oblong, 1.5 cm. long, 6 mm. broad: disk-flowers numerous: pappus-bristles unequal, the longer equalling or exceeding the tube of the corolla: achenes hirtellous-puberulent above, many-ribbed. — MEXICO. State of Chihuahua: Sierra Madre, 21 June, 29 July, 1899, *E. W. Nelson*, no. 6102 (hb. Gr., and hb. U. S. Nat. Mus.); Sierra Madre, near Colonia Garcia, altitude 2450 m., 26 July, 1899, *Townsend & Barber*, no. 169 (hb. Gr.).

Var. **vestitum.** Outer scales of the involucre 7 to 9 mm. long, and closely covered with purplish glandular hairs; otherwise like the species proper. — MEXICO. State of Durango: 48 km. north of Guanacevi, altitude 2450 to 2775 m., 18 August, 1898, *E. W. Nelson*, no. 4778 (hb. Gr., and hb. U. S. Nat. Mus.). In general habit *Arnicastrum glandulosum*, and the variety *vestitum* resemble certain species of *Arnica* more particularly in the opposite leaves and the rather long internodes. In the technical characters of the head, however, they seem to have their nearest affinity with *Jaumea, Bæria* and *Whitneya.*

Porophyllum calcicola, Rob. & Greenm. Annual, glabrous throughout: stem erect, usually much-branched, green or purplish, more or less glaucous: leaves petiolate, oblong to obovate-subrotund, 0.5 to 3.5 cm. long, 0.5 to 1.5 cm. broad, obtuse or rounded at the apex, entire to somewhat sinuate, bearing 3 to several elliptic-oblong marginal glands, cuneate at the base into the slender 0.5 to 2.5 cm. long petioles: heads about 1.5 cm. high on upwardly enlarged 1 to 3 cm. long peduncles: involucre of 5 linear acute bracts about 13 mm. in length, indigo-blue or plum-colored: flowers 18 to 20, slightly exceeding the involucre; pappus about equalling the slender puberulent greenish corolla-tube; the campanulate limb of the corolla rather deeply 5-lobed, deep purple: mature achenes 6 to 7 mm. long, puberulent. — MEXICO. State of Guerrero: on limestone ledges of mountains above Iguala, altitude 920 m., 24 October, 1900, *C. G. Pringle*, no. 9059 (hb. Gr.), distributed as "*Porophyllum Pringlei*, Rob." State of Morelos: on limestone hills near Yantepec, altitude 1385 m., 8 November, 1902, *C. G. Pringle*, no. 8720 (hb. Gr.). Most nearly related to *Porophyllum Pringlei*, Rob., but differing by the more numerously flowered heads, shorter involucres and flowers, more deeply lobed corolla-tube and shorter mature achenes. The flowers moreover in *P. calcicola* are deep purple not white as in *P. Pringlei*.

Bahia glandulosa. An herbaceous perennial (?), glandular-pubescent throughout: stem erect, 7 dm. or more high, freely branching above, striate: leaves alternate, petiolate, tri- or quaternately compound, including the petiole 2 to 12 cm. long, 10 cm. or less broad; divisions linear to linear-oblong, obtuse; the uppermost leaves often reduced to individual spatulate-linear or linear-obtuse bracts: inflorescence terminating the stem and branches in a many-headed flat-topped corymbose cyme: heads 1 cm. or less high, including the rays about 1.5 cm. in diameter: involucre of 10 to 14 lance-oblong obtuse uniseriate bracts: ray-flowers 15 to 20, pale yellow or whitish: disk-flowers numerous: pappus of 10 to 12 obovate-spatulate and muticus to lanceolate paleo-aristate scales, somewhat variable in length: mature achenes about 3 mm. long, puberulent to essentially glabrous. — MEXICO. State of Durango: vicinity of the City of Durango, April to November, 1896, *Dr. Edward Parker*, no. 492 (hb. Gr.). State of Chihuahua, on hills and plains near the City of Chihuahua, 24 October, 1885, *C. G. Pringle*, no. 308 (hb. Gr.), distributed as "*Bahia biternata*, Gray."

A species on the one hand resembling *Bahia chrysanthemoides*, Gray, and on the other *B. biternata*, Gray. From the former it is distin-

guished by the presence of the pappus, and the short corolla-lobes; and from the latter by the glandular pubescence throughout instead of being densely hirtellous on stem and leaves with only a few glandular hairs above in the inflorescence.

Tagetes Nelsonii. Stem striate, purplish, glabrous: leaves opposite, petiolate, pinnatisect; divisions 3 to 7, elliptic-lanceolate, 1 to 6 cm. long, 0.5 to 2 cm. broad, acute, sharply and evenly dentate, each tooth bearing a single gland, dark green above, paler beneath, glabrous or slightly puberulent on the upper surface, distinctly crisp-puberulent on the lower surface, evenly glandular-punctate: inflorescence a terminal many-headed corymbose cyme: heads about 1 cm. high, radiate: involucre cylindrical, 5–7-dentate, numerously punctate with oblong-elliptic glands: ray-flowers usually 5, occasionally 6; tube slender, nearly equalling the oblong 0.5 cm. long lamina: disk-flowers 9 to 12: pappus of short, unequal scales: achenes 4 to 5 mm. long, glabrous. — MEXICO. State of Chiapas: near Tumbala, altitude 1200 to 1650 m., 20 October, 1895, *N. W. Nelson*, no. 3314 (hb. Gr., and hb. U. S. Nat. Mus.).

Urbinella, n. gen. of *Compositæ* (*Tagetineæ*). Heads heterogamous, radiate. Involucre campanulate; bracts 1-seriate, free or very slightly united at the base. Receptacle conical, naked. Ray-flowers uniseriate, fertile. Disk-flowers regular; tube slender, gradually ampliated above into a 5-toothed limb. Anthers minutely toothed at the base, appendaged at the apex. Style-branches sublanceolate-appendaged. Achenes of ray- and disk-flowers uniform, terete, many-striate. Pappus paleaceous of 5 to 7 scales, some or none awn-bearing. Small annuals with alternate leaves.

U. Palmeri. Glabrous throughout: stem 0.5 to 2 dm. high, simple or much-branched, more or less purplish: leaves simple and undivided, linear or subterete, 0.5 to 2.5 cm. long, obtusish, bearing 1–several rather conspicuous glands, one of which usually occurs near the tip: heads nodding or erect, 5 to 9 mm. high, including the rays 1 to 1.5 cm. in diameter, terminating the stem and branches on slender peduncles: involucral bracts mostly 5, oblong or obovate-oblong, about 5 mm. long, externally obtusely keeled along the median line, scarious-margined, slightly lacerated or unevenly margined at the rounded tip, bearing 1–several roundish or elliptic-oblong glands: ray-flowers 5; tube slender, 2 mm. long; rays white with a yellowish base, obovate or obovate-cuneate, 5 to 6 mm. long, nearly or quite as broad: disk-flowers few to many (40 or less), light yellow: anthers narrowly appendaged at the tips: scales of the pappus obovate-cuneate to lanceolate, one or two awn-bearing:

achenes 3 mm. long, glabrous or sparingly puberulent. — MEXICO. State of Durango: vicinity of the City of Durango, April to November, 1896, *Dr. Edward Palmer*, no. 793 (hb. Gr., and hb. U. S. Nat. Mus.).

The genus here proposed is related to *Dysodia* and *Hymenatherum*. From the former it differs in the character of the pappus, and from the latter in the fewer scales of the pappus, as well as in the character of the involucre.

The genus is dedicated to Dr. Manuel Urbina, Director of the National Museum, City of Mexico.

Pectis latisquama, Schz. Bip. A low subprostrate herbaceous perennial, numerously branched from a suffruticose base: stems leafy, hirtellous-pubescent: leaves linear or linear-lanceolate, 1 to 2 cm. long, 2 to 3 mm. broad, acute, somewhat revolute-margined, bearing 3 to 5 pairs of cilia near the base, glabrous on both surfaces: heads 10 to 12 mm. high, terminating the stem and branches on 1 to 3 mm. long puberulent naked or bracteate peduncles: scales of the involucre 5, oblong-elliptic or obovate, 6 to 7 mm. long, 4 to 5 mm. broad, rounded at the apex, obtusely keeled, ciliate, more or less purplish-tinged, glabrous: ray-flowers usually 5; tube 2 to 3 mm. long, shorter than the longest of the numerous unequal pappus-bristles; rays orange-yellow, oblong-ovate, 6 to 7 mm. long, 3 to 5 mm. broad: disk-flowers 10 to 20; pappus of numerous bristles, the longer two-thirds as long as the corolla: achenes of both ray- and disk-flowers pubescent. — Acc. to Gray, Proc. Am. Acad. v. 181, name only. *Pectis canescens*, Gray, l. c. xix. 47, in part, as to citation in synonomy, not HBK. *P. canescens*, Fernald, l. c. xxxiii. 82, in part, as to *Schaffner's* no. 85 (hb. Gr.), not HBK. — MEXICO. State of Mexico: Valley of Mexico, *Schaffner*, no. 85 (hb. Gr.). State of Puebla: thin soil, Amozoc, altitude 2100 m., 9 September, 1902, *C. G. Pringle*, no. 8604 (hb. Gr.).

Neurolæna macrocephala, Schz. Bip. acc. to Hemsley, Biol. Cent.-Am. Bot. ii. 233. *Neurolæna semidentata*, Klatt, in Leopoldina, xx. 94 (reprint, p. 7). The type specimens of these two described species are both in the Gray Herbarium, and the identity of the two plants is without question, hence it becomes necessary to retain the older combination and treat the other as a synonym.

Neurolæna macrophylla. Stem sulcate, striate, reddish-brown, appressed-puberulent: leaves alternate, thin or membranous, somewhat rhombic-lanceolate, including the petiole 1.5 to 4 dm. long, 4 to 9 cm. broad, acuminate, shallowly dentate to denticulate, gradually narrowed below into a 1 to 3 cm. long petiole, dark green and sparingly puberulent

on the upper surface, paler and essentially glabrous beneath: inflorescence a terminal compound many-headed corymb: heads discoid, about 1 cm. high, and 0.5 cm. thick, about 20-flowered: involucre 4–5-seriate; bracts of the involucre ovate to ovate-oblong, obtuse, imbricated, the outer bracts shorter than the inner: achenes 2.5 mm. long, somewhat pubescent above. — MEXICO. State of Chiapas: Chicarras, altitude 1000 to 2000 m., 6 February, 1896, *E. W. Nelson*, no. 3766 (hb. Gr., and hb. U. S. Nat. Mus.).

Senecio firmipes. Fruticose: stem leafy, glabrous: leaves scattered, crowded, lanceolate, 2 to 3 cm. long, 4 to 6 mm. wide, acuminate, acute, somewhat pungent-tipped, entire, slightly hirtellous on the margins, narrowed below into an articulate base, glabrous on both surfaces, and somewhat glaucous beneath; the persistent petiole-like portion of the base of the leaves later more or less covering the stem: inflorescence a terminal compound corymbose cyme: heads discoid, 5 to 6 mm. high, 15–20-flowered; involucre of 8 oblong-ovate glabrous thickish obtuse bracts, shorter than the flowers; bracteoles few and appressed to involucre: achenes glabrous. — COSTA RICA. Cerro de la Muerte, altitude 3100 m., January, 1897, *H. Pittier*, no. 10,472 (hb. Gr., and hb. Inst. Phys.-Geog. Cost. Ri.); Vueltas, *H. Pittier*, no. 10,505 (hb. Gr., and hb. Inst. Phys.-Geog. Cost. Ri.).

This species belongs to the § *Fruticosi*, and of the North American species it is nearest related to *S. vernicosus*, var. *major*, Wedd. In South America, however, it has several congeners, namely, *S. glacialis*, Wedd., *S. pulchellus*, DC., and *S. abietinus*, Willd.

Senecio (§ **Mulgedifolii**) **pterocaulis.** Stem erect, striate, arachnoid-tomentose: leaves alternate, lanceolate or lance-attenuate, 0.5 to 1.5 dm. long, 3 to 13 mm. broad, acute, cartilaginous-denticulate, conspicuously decurrent on the stem, arachnoid-tomentose on both surfaces more densely so beneath; inflorescence terminating the stem and branches in a paniculate many-headed cyme; bracts of the inflorescence linear-attenuate to setaceous: heads 10 to 12 mm. high, discoid, 40–50-flowered: involucre calyculate with minute setaceous bracteoles; bracts of the involucre usually 21, linear, acute, glabrous and stramineous: achenes appressed-sericeous-pubescent. — MEXICO. State of Morelos: in lava fields above Cuernavaca, altitude 2155 m., 24 November, 1902, *C. G. Pringle*, no. 8704 (hb. Gr.).

Lycoseris macrocephala. Stem leafy to the inflorescence, subangulate, striate, at first arachnoid-tomentulose, later glabrate: leaves alternate, short-petiolate, elliptic-lanceolate or somewhat ovate-oblong,

1 to 2 dm. long, 2 to 8 cm. broad, acuminate, acute, serrulate, narrowed at the base into a 3 to 5 mm. long petiole, dark green and glabrous above, arachnoid-tomentulose beneath, pellucid-punctate, subparallel 5-nerved; midrib and the two pairs of lateral nerves prominent on the under side of the leaf-blade: heads of pistillate flowers large, 4 to 5 cm. high, 5 to 7 cm. broad, terminating the stem and branches on short stout peduncles: involucre about 8-seriate, arachnoid-tomentose; scales of the involucre lance-acuminate, appressed or slightly squarrose, the outer successively shorter: rays about 1 cm. long, 2 mm. broad: disk-flowers numerous; pappus of many slender setæ: heads of staminate flowers about 2 cm. high and broad, on short peduncles: involucre 4–5-seriate, arachnoid-tomentose; scales of the involucre lance-oblong, obtuse, appressed or very slightly spreading, the outer shorter than the inner; rays narrowly oblong, 10 to 12 mm. long, 3 mm. broad. — COSTA RICA. Forêts des collines de Nicoya, February, 1900, *Ad. Tonduz*, no. 13,602 (hb. Gr., and hb. Inst. Phys.-Geog. Cost. Ri.), pistillate plant; boussailles a Nicoya, January, 1900, *Ad. Tonduz*, no. 13,620 (hb. Gr., and hb. Inst. Phys.-Geog. Cost. Ri.), staminate plant.

Notwithstanding the considerable difference in the size of the heads of the two specimens above cited, the writer has no doubt that they represent the pistillate and staminate plants of one species. In the stem and foliar characters there is absolute identity.